88-1167

No. 88-

Supreme Court, U.S.
FILED
JAN 13 1989
JOSEPH F. SPANIOL, JR.
CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM, 1988

DANIEL CONSTRUCTION COMPANY, A DIVISION OF DANIEL INTERNATIONAL CORPORATION,
Petitioner,

v.

LOCAL 257, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO, *et al.*,
Respondents.

APPENDIX TO PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE EIGHTH CIRCUIT

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Dated: January 13, 1989

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WILSON - EPES PRINTING CO., INC. - 789-0096 - WASHINGTON, D.C. 20001

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APPENDIX A

UNITED STATES COURT OF APPEALS FOR THE EIGHTH CIRCUIT

No. 87-1167

DANIEL CONSTRUCTION COMPANY, a DIVISION OF DANIEL INTERNATIONAL CORPORATION,

Appellant,

v.

LOCAL 257, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO; LOCAL 36, SHEET METAL WORKERS INTERNATIONAL ASSOCIATION; LOCAL 513, INTERNATIONAL UNION OF OPERATING ENGINEERS; LOCAL 1185, BROTHERHOOD OF PAINTERS, DECORATORS AND PAPERHANGERS OF AMERICA, AFL-CIO; LOCAL 662, LABORERS INTERNATIONAL UNION OF NORTH AMERICA, AFL-CIO; LOCAL 2, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO,

Appellees.

Appeal from the United States District Court for the Western District of Missouri

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Submitted: October 15, 1987

Filed: September 16, 1988

Before MAGILL, Circuit Judge, BRIGHT and ROSS, Senior Circuit Judges.

BRIGHT, Senior Circuit Judge.

Daniel Construction Company (Daniel) appeals from the district court's [1] orders enforcing an arbitrator's decision awarding backpay to employees who had been discharged for failing a psychological test, which allegedly screened employees who were security risks in a nuclear power plant. We affirm the district court.

I. BACKGROUND

Daniel served as the general contractor for Union Electric Company's nuclear power plant in Callaway County, Missouri. The grievants, employees of Daniel and its subcontractors, were members of the six appellee unions. Daniel and the unions entered into a collective bargaining agreement (the Project Agreement) which governed labor matters in connection with construction of the Callaway plant.

As part of its security program, which was in accord with the guidelines of the Nuclear Regulatory Commission (NRC), Union Electric required screening of all employees for unescorted access to sensitive areas of the Callaway plant. The grievances which are the subject of this appeal arose in 1984 when Daniel discharged 157 employees who failed the screening procedures. The unions brought these grievances on behalf of the employees, contending that the dismissals violated the Project Agreement. The grievances proceeded to arbitration and the arbitrator upheld 140 of the 157 grievances,[2] finding that Daniel violated the Project Agreement in failing to provide a valid screening test and thus, Daniel

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[1] The Honorable Scott O. Wright, Chief Judge, United States District Court for the Western District of Missouri.

[2] The arbitrator denied the grievances of five employees who failed the background investigation, nine employees who failed the physical security test and three employees who were illiterate and unable to take the psychological test. These denials were not appealed and are therefore not at issue.

did not have "good reason"[3] to dismiss the employees. The district court granted the unions' motion for summary judgment enforcing the backpay award. This appeal followed.

This case involves statutory and contractual obligations of several different entities: 1) obligations of Union Electric to the NRC; 2) obligations between Union Electric as owner of the Callaway plant and Daniel as the general contractor; and 3) obligations between Daniel and the unions under the Project Agreement.

A. Regulation of the Callaway Plant by the NRC

The NRC licensed Union Electric's Callaway power plant. Before a license is issued, the NRC requires the licensee to submit a site security plan. *See* 10 C.F.R. § 73.55(a) (1988).[4] Although no regulations specifically require employee screening, the NRC has issued interpretive guidelines providing that a licensee should establish as part of its security plan an acceptable program for screening employees for unescorted access to sensitive areas of the plant. A November 1977 memorandum from the Chief of the Reactor Safeguards Licensing Branch of the NRC to Branch Members stated:

> Screening of individuals granted unescorted access to the protected area helps establish the trustworthiness of employees, prospective employees, and contractors, and reduces the vulnerability of the facility from the

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[3] The contract required cause for a dismissal of an employee which the arbitrator interpreted to mean "good reason." *See* n.8, *infra.*

[4] 10 C.F.R. § 73.55(a) provides in part:

> The licensee shall establish and maintain an onsite physical protection system and security organization which will have as its objective to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.

> threat of an insider. As a minimum, screening programs should meet the guidance in American National Standard, ANSI N18.17, "Industrial Security for Nuclear Power Plants."

The minimum standard endorsed by the NRC, ANSI N18.17, was issued in 1973 by a subcommittee of the American Nuclear Society Standards Committee and approved by the American National Standards Institute (ANSI). With regard to screening procedures, ANSI N18.17 provided in section 4.3(2) that "[*t*]*hese procedures shall include, as a minimum,* * * * *examination by a licensed psychiatrist or physician, or other person professionally trained to identify aberrant behavior* * * *." (Emphasis added).

ANSI N18.17 was revised in 1982. As noted by the arbitrator, the new section, ANSI 3.3-1982, was more detailed with regard to employee screening. It provided in section 5.4.5.1 that "[p]ersonel screening shall be conducted in-depth according to the sensitivity of the areas to which unescorted access is to be permitted." It stated that a plant's screening program was to include a background check, psychological evaluation and security training. With regard to psychological evaluations, ANSI 3.3-1982 provided in section 5.4.5.1(6)(e):

> Reliability and stability shall be indicated by the results of a *reliable and valid* written personality test or by other professionally accepted clinical assessment procedure administered by or under the supervision of a licensed psychologist or psychiatrist cognizant of this standard. (Emphasis added.)

In 1978 the NRC published the "Security Plan Evaluation Report Workbook."[5] It provided:

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[5] The introduction to the Security Plan Evaluation Report Workbook stated that it was developed 1) as an aid for evaluating licensee physical security plans, and 2) as the single source for preparing Security Plan Evaluation Reports. It stated that "[t]he workbook,

1.3.1 Personnel Reliability

Acceptance Criterion 1.3.1.A: The licensee shall develop and conduct a screening program for all personnel who are authorized for unescorted access to the protected area. As a minimum, this program shall follow the employee screening guidance in American National Standard ANSI N18.17, "Industrial Security for Nuclear Power Plants."

The workbook continued that an adequate screening program should include "a preemployment investigation for adverse character traits, a preassignment examination to identify aberrant behavior, and continued observation during assignment for indications of aberrant behavior."

B. Union Electric's Security Plan

As part of its license application, Union Electric submitted its security plan to the NRC for approval. Gary Pendergraff, Superintendent of Security for Union Electric at the Callaway plant, testified that Union Electric intended that its test conform with ANSI standards. In accordance with ANSI N18.17, Union Electric's screening program provided for a security background investigation, a security test and psychological evaluation and appeal. With regard to psychological evaluations, Union Electric's plan, which was accepted by the NRC, provided in section 3.2:

> Behavioral reliability and stability shall be substantiated by the results of a reliable and valid written personality test or by other professionally accepted clinical assessment procedure administered by or under the supervision of a licensed psychologist or psychiatrist cognizant of [ANSI 3.3], Security for Nuclear Power Plants.[6]

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when completely filled in, will also provide a record of the justification for accepting or rejecting a plan."

[6] After the ANSI standards were revised in 1982, Union Electric upgraded its commitment to the NRC to comply with ANSI 3.3-1982.

Although the security plan included this representation, the plan submitted and approved did not include the specific test to be used because the test had not yet been developed. Pendergraff testified that once the NRC granted Union Electric's license, Union Electric was committed to implementing this security plan which it submitted, and that violation of this commitment could result in a fine, citation or withdrawal of Union Electric's operator license.

Union Electric engaged the Institute for Personality and Ability Testing (IPAT) in 1978 to develop its written psychological test. Union Electric intended that the design comply with its representation to the NRC regarding the psychological evaluations. For screening its own employees, Union Electric utilized the original IPAT test (complete-IPAT). This test battery consisted of three personality tests. The results of the test battery were scored by computer. The raw score and resultant "profile" were reviewed by two IPAT staff members who determined whether the employee who had taken the test was "high risk." Except in a few cases, a predetermined cutoff score was used for determining who was high risk. As IPAT recommended, those failing the test could appeal and obtain an interview with a clinical psychologist. The complete-IPAT complied fully with ANSI standards.

In 1981, Union Electric requested that IPAT develop a shorter phychological test for convenience and ease in testing a larger number of persons—employees of contractors. In response, IPAT shortened the original test from 667 to 429 items. IPAT called the shortened test "mini-IPAT." Dr. Samuel Krug, the psychologist who developed the mini-IPAT, testified that he did not recommend to Union Electric that an appeal procedure be used with the mini-IPAT.

While it is unclear whether the NRC approved the IPAT test given to Union Electric employees,[7] the record lacks any showing that the NRC approved the mini-IPAT.

C. Union Electric's Agreement with Daniel

As noted by the arbitrator, Union Electric had a contractual obligation to the NRC to screen persons for unescorted access to the plant, and to refuse unescorted access to anyone who did not pass the screening procedures. Therefore, Daniel could not have required Union Electric to grant unescorted access to any employees who had not received security clearance. However, if an employee did not obtain a security clearance, the employee could enter a protected or vital area if escorted by a person with a security clearance. One such person could escort up to ten people in a protected area and five people in a vital area.

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[7] There was some question as to whether the NRC reviewed and approved the specific psychological test used by Union Electric. The unions contend that the NRC did not review the specific test. However, Pendergraff testified before the arbitrator that the NRC had asked to review the psychological test, and after doing so did not have any objections. Further, Daniel presented testimony before the arbitrator of a former NRC official who stated that the NRC was onsite at the Callaway plant for several weeks when Union Electric's security procedures were first implemented, and the NRC observed all the security procedures used, including the administration of the psychological test. At oral argument before this court, Daniel stated that since the grievances were filed in this case, the NRC has reviewed Union Electric's security plan and contends that, in effect, the NRC must have approved the test because Union Electric retains its license. The arbitrator made no finding as to whether the specific psychological screening test used by Union Electric was approved by the NRC. Contrary to Union Electric's assertion, nowhere in the record do we find any express approval or express disapproval of the psychological tests. What is quite clear, however, is that the NRC did not approve the mini-IPAT. Moreover, we are skeptical whether the NRC would have approved the mini-IPAT, because the mini-IPAT provided for no avenue of appeal by a personal interview, and thus, as the district court noted, did not satisfy the ANSI standards.

Union Electric gave Daniel the option of using the mini-IPAT or developing its own test which had to comply with ANSI standards and be approved by Union Electric. Daniel and its subcontractors chose to use the mini-IPAT.

D. Contractual Agreement Between Daniel and the Unions

In 1975, Daniel and eighteen labor unions, including the six appellee unions, entered into a Project Agreement governing the terms and conditions of construction employment at the Callaway plant. Two provisions of the Project Agreement are at issue here.

The first, Article II, Section 4 of the Project Agreement gave Daniel the right to "establish appropriate security, safety and job rules." The arbitrator determined that the term "security rule" encompassed procedures for screening employees. Arbitrator's Opinion at 40-41. Additionally, the arbitrator found that the term "appropriate" meant that Daniel could not use screening procedures which were "arbitrary, capricious, or unreasonable," but instead must be "reasonable and suited to accomplishment of [their] purpose." Arbitrator's Opinion at 42-43.

The second relevant clause of the Project Agreement is Article II, Section 1, which gave Daniel the right to discharge employees for cause.[8] The arbitrator interpreted this clause to mean that Daniel could discharge employees only for "good reason." Arbitrator's Opinion at 47.

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[8] Article II, Section 1 of the Project Agreement between Daniel and the unions provided in part:

> The Employer [Daniel] retains full and exclusive authority for the management of its operations. Except as expressly limited by the terms of this Agreement, the Employer retains the right to direct the work forces, including but not limited to the hiring of personnel, the selection of all supervisory employees, promotions, transfers and discharges of employers for cause.

E. The Grievances and the Arbitrator's Award

As construction neared completion in April of 1984, Union Electric introduced nuclear fuel into the Callaway plant. At that time, Union Electric implemented its security plan. Under the terms of Union Electric's license from the NRC, unescorted access to sensitive areas of the plant was restricted to those persons with security clearances. Thereafter, Daniel dismissed 157 employees who had been denied security clearances. Most of these employees had failed the psychological test. Daniel chose not to utilize the escorted access plan included in the Union Electric/Daniel Agreement.

The unions filed grievances on behalf of the employees, contending that Daniel improperly terminated the employees in violation of the Project Agreement. The grievances proceeded to arbitration, and the arbitrator concluded that Daniel improperly discharged the employees who failed the psychological test. *See supra* n.2.

As noted, the arbitrator interpreted the Project Agreement as requiring Daniel to establish appropriate and reasonable security rules. The arbitrator opined that an appropriate and reasonable psychological test must be "reliable" and "valid," based on ANSI 3.3-1982 and Union Electric's commitment to the NRC, both of which called for a "reliable and valid written personality test."

The unions vigorously contested the propriety of the mini-IPAT phychological examination. Daniel produced extensive evidence supporting the test. After considering the extensive expert testimony, the arbitrator found the test to have sufficient "reliability". He determined, however, that the mini-IPAT test battery with an absolute cutoff score lacked adequate "validity", and that the test procedure should have provisions for clinical interview of at least the individuals who did not pass the written test. The arbitrator ruled therefore that "the test was not a reasonable one and was not an appropriate security rule." Arbitrator's Opinion at 145.

According to evidence accepted by the arbitrator, the test would have screened out a large number of employees who were actually stable, while passing a number of employees who were unstable.[9] In sum, the arbitrator rejected the test as unreasonable because it lacked predective validity and because it provided no appeal interview with a clinical psychologist to ameliorate this flaw.

Daniel also argued that even if the screening procedures (specifically the mini-IPAT) were unreasonable, Daniel was not responsible for them because the procedures were provided by Union Electric. In rejecting this argument, the arbitrator emphasized that Daniel could have developed its own screening procedures, so long as those procedures conformed to ANSI standards and met Union Electric's approval. Therefore, the arbitrator determined that Daniel's use of the procedures offered by Union Electric did not discharge Daniel's obligation to the unions under the Project Agreement.

The arbitrator concluded that Daniel's dismissals of those grievants who had failed the test violated the Project Agreement because failing the test could not constitute "good reason" for termination. Daniel's violation, the arbitrator concluded, entitled the employees to backpay only, without interest.[10]

Daniel filed suit in the district court seeking to vacate the arbitration award, contending that the award violated the public policy of the United States concerning nuclear safety. Daniel argued that the NRC has exclu-

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[9] The arbitrator cited statistical evaluations in concluding that the predictive validity of the test was not subsantially greater than random selection. Put another way, the results of the mini-IPAT could have been reproduced by flipping a coin. Arbitrator's Opinion at 92-94.

[10] Because of the winding down of construction and layoffs made to employees passing the test, the arbitrator limited the remedy to backpay which might have been earned by the grievants.

sive control over the regulation of safety at nuclear power plants, and that the arbitrator's decision regarding Union Electric's site security plan usurped the NRC's authority. Additionally, Daniel argued that the arbitrator's award did not draw its essence from the Project Agreement.

The district court rejected Daniel's public policy argument, stating:

> It is [the arbitrator's] finding of invalidity of the [mini-IPAT test] that supports the defendants's argument that the arbitration award does not violate a public policy of safety and security. In fact, an invalid psychological test does not satisfy the ANSI standard set forth above.
>
> Plaintiff has cited to several cases from other circuits where an arbitration award was deemed to violate public policy. These cases all involved behavior that clearly was counterproductive to the stated public policy. *See, e.g., Amalgamated Meat Cutters v. Great Western Food Co.*, 712 F.2d 122 (5th Cir. 1983) (truck driver drinking alcohol on the job); *Misco, Inc. v. United Paperworkers International Union, AFL-CIO*, 768 F.2d 739 (5th Cir. 1985) (employee smoking marijuana while operating dangerous machinery); *Local No. P-1236 Amalgamated Meat Cutters v. Jones Dairy Farm*, 680 F.2d 1142 (7th Cir. 1982) (employer's rule prohibiting the reporting of unsanitary conditions); *World Airways, Inc. v. international* [*sic*] *Brotherhood of Teamsters*, 578 F.2d 800 (9th Cir. 1978) (airline pilot exercising poor judgment).
>
> * * * *
>
> In the present case, the enforcement of the arbitrator's award would not, under principles of extremely limited judicial review of arbitration awards, violate

> the public policy in favor of safety and security at nuclear power plant locations.

Dist. Ct. Order at 6-7.

The district court also rejected Daniel's contention that the issue should not be arbitrated under the Project Agreement's arbitration clause. In so doing, the district court observed that "the Project Agreement's broad arbitration clause empowered the arbitrator to determine whether the grievants were discharged 'for cause'." Dist. Ct. Order at 9. The district court concluded, therefore, that the award by the arbitrator drew its essence from the collective bargaining agreement.

On December 22, 1986, the district court denied Daniel's motion for reconsideration, in which Daniel asserted that the grievances could not be arbitrated because "the public policy of the United States is that all decisions concerning security practices at nuclear plants have been reserved exclusively to the Nuclear Regulatory Commission (NRC)." Dist. Ct. Order denying reconsideration at 1.

In response, the district court stated:

> Plaintiff asserts that the arbitrator was thus 'preempted from considering the merits' of the security plan.
>
> The cases cited by the plaintiff do not directly support this argument. As stated in this Court's previous order, both parties noted that the NRC endorsed the ANSI standards as an appropriate minimum industry standard. Section 5.4.5 refers to psychological evaluations and requires a *valid* written personality test or clinical assessment. However, it does not appear that the NRC had promulgated rules either approving or mandating a certain psychological test to be used. It certainly is not 'clear' that the determination of the validity of the particu-

> lar test used was preempted by the NRC, and excluded from the broad arbitration provision in the project agreement.

Dist. Ct. Order denying reconsideration at 2.

On appeal, Daniel essentially reasserts its public policy argument.

II. DISCUSSION

During the October 1987-1988 term, the Supreme Court reemphasized the very limited role cast on federal courts in reviewing an arbitrator's award of a collective bargaining agreement. *United Paperworkers Int'l Union v. Misco, Inc.*, 108 S. Ct. 364, 370 (1987). A court may not overrule the arbitrator's decision simply because the court believes that its interpretation of the parties' collective bargaining agreement is the better one. *W.R. Grace & Co. v. Local Union 759, Int'l Union of the United Rubber, Cork, Linoleum & Plastic Workers*, 461 U.S. 757, 764 (1983). The court is to enforce the arbitrator's award as long as the award "'dra[ws] its essence from the collective bargaining agreement.'" *Id.* (quoting *Steelworkers v. Enterprise Wheel & Car Corp.*, 363 U.S. 593, 597 (1960)). "[A]s long as the arbitrator is even arguably construing or applying the contract and acting within the scope of his authority, that a court is convinced he committed serious error does not suffice to overturn his decision." *Misco*, 108 S. Ct. at 371. Indeed, as the Court in *Misco* stated,

> [b]ecause the parties have contracted to have disputes settled by an arbitrator chosen by them rather than by a judge, it is the arbitrator's view of the facts and of the meaning of the contract that they have agreed to accept. Courts thus do not sit to hear claims of factual or legal error by an arbitrator as an appellate court does in reviewing decisions of lower courts. To resolve disputes about the application of a collective-bargaining agreement, an arbi-

> trator must find facts and a court may not reject those findings simply because it disagrees with them.

Id. at 370-71.

Clearly, as the district court determined, the issues presented were arbitrable because the Project Agreement gave the arbitrator broad authority. As this court has recently stated:

> [W]here the contract contains an arbitration clause, there is a presumption of arbitrability in the sense that "[a]n order to arbitrate * * * should not be denied unless it may be said with positive assurance that the arbitration clause is not susceptible of an interpretation that covers the asserted dispute. *Doubts should be resolved in favor of coverage.*"

International Association of Machinists and Aerospace Workers, District Lodge No. 19 v. Soo Line Railroad Co., No. 86-5355, slip op. at 25-26 (8th Cir. June 22, 1988) (en banc) (quoting *AT&T Technologies, Inc. v. Communications Workers of America*, 475 U.S. 643, 650 (1986) (emphasis in *Soo Line*)). In fact, where, as here, the arbitration clause refers broadly to any dispute over interpretation, "only the most forceful evidence of a purpose to exclude the claim from arbitration can prevail." *AT&T Technologies*, 475 U.S. at 650.

We also must accept the arbitrator's findings that the mini-IPAT test is invalid and that good reason did not exist for terminating the employees. *Misco*, 108 S. Ct. at 374 ("The parties did not bargain for the facts to be found by a court, but by an arbitrator chosen by them * * *."). However, whether we should refuse to enforce the arbitrator's decision on public policy grounds merits discussion.

The Supreme Court has made clear that, as with any other contract, a collective bargaining agreement that is contrary to public policy may not be judicially enforced.

W.R. Grace, 461 U.S. at 766. Such a public policy "must be well defined and dominant, and is to be ascertained 'by reference to the laws and legal precedents and not from general considerations of supposed public interests.'" *Id.* (quoting *Muschany v. United States*, 324 U.S. 49, 66 (1945)). "Because collective bargaining agreements do not formulate public policy, and arbitrators cannot consider matters not encompassed by the governing agreements, 'the question of public policy is ultimately one for resolution by the courts.'" *Iowa Elec. Light & Power Co. v. Local Union 204 of the Int'l Bhd. of Elec. Workers*, 834 F.2d 1424, 1427 (8th Cir. 1987) (quoting *W.R. Grace*, 461 U.S. at 766).

The Court, in *Misco* also discussed the public policy exception. In *Misco*, a machine operator filed a grievance after being discharged. Police had apprehended him sitting in the back seat of a car on the employer's parking lot during working hours with marijuana smoke in the air and a lighted marijuana cigarette in the ashtray. The arbitrator ordered the employee reinstated, finding insufficient proof that the employee violated the employer's rule against or possessing controlled substances on company property. The district court vacated the award, and the Fifth Circuit affirmed, holding that reinstatement of the employee violated the public policy against persons operating dangerous machinery while under the influence of controlled substances.

Reversing the court of appeals, the Supreme Court held that the Fifth Circuit's analysis failed on three points: 1) in making no attempt to review existing law and legal precedent in order to determine whether those matters established a well-defined and dominant public policy against persons operating dangerous machinery while under the influence of controlled substances; 2) in failing to clearly show a violation of that public policy in this specific case, even if there were such a public policy; and 3) in inappropriately drawing inference and

engaging in factfinding, which were tasks for the arbitrator. *Misco*, 108 S. Ct. at 374.

Here, no question exists but that public policy requires that unstable employees be denied access to sensitive areas of a nuclear power plant. The contract, the arbitrator's award, the position of the parties, all support that principle. *See Iowa Electric, supra.* But that is not the public policy argument submitted by Daniel.

Daniel states the public policy claim in this way: "[T]he Arbitrator * * * violated public policy by deciding whether Union Electric's security plan complied with the NRC's standards for site access screening. The mistake that makes this award unenforceable occurred when the Arbitrator concluded that he, rather than the NRC, should decide whether the plan was consistent with NRC standards." Daniel's Brief at 9.

The illogic and weakness of this contention is that Daniel makes the unwarranted and unsupported assumption that the NRC actually evaluated, expressly approved or otherwise decided that the plan in question (the mini-IPAT) complied with NRC regulations regarding appropriate security screening procedures.

The only evaluation of the screening plan was one rigorously tested in the adversary process before the arbitrator and reviewed by the district court and this court. That plan was found wanting in validity and was unreasonable in failing to provide for a clinical review for those employees failing the written test.

We must reject the public policy argument advanced by Daniel. Taking the arbitrator's findings as true, we have Daniel, in effect, advancing an argument that a faulty psychological test utilized by the employer which may permit unstable individuals into sensitive areas of a nuclear power plant, advances the public policy of nuclear plant safety and must override a thoughtful,

careful rejection of the test by the arbitrator who has heard the evidence of test accuracy and propriety advanced by the parties. The public policy argument on analysis is devoid of substance. We reject that argument.

This case clearly can be distinguished from the public policy ruling in *Iowa Electric, supra.* In *Iowa Electric,* a nuclear power plant machinist who was discharged for deliberately violating important federally-mandated safety regulations. The labor arbitrator called for reinstatement of the machinist. The district court reversed the arbitrator and this court affirmed the district court based on the above cited public policy grounds. Daniel relies heavily on *Iowa Electric* as well as other cases which have held an arbitrator's decision violative of public policy, where the safety of the general public was implicated.[11] A key difference in this case, however, is that no public safety concerns are implicated by the arbitrator's award of backpay, as opposed to an order returning a potentially dangerous employee to the workplace. Moreover, public policy considerations actually mandate enforcement of the award because, as found by the arbitrator, Daniel violated ANSI and therefore NRC standards, as well as the collective bargaining agreement, by using an invalid screening procedure.

Finally, the Supreme Court in *Misco* stated that the reviewing court is not to engage in its own factfinding and inference drawing in considering whether the arbi-

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[11] *See, e.g., Stead Motors v. Automotive Machinists Lodge No. 1173,* 843 F.2d 357 (9th Cir. 1988) (reversing arbitrator's ordered reinstatement of automobile mechanic who had been terminated for repeatedly placing the lug bolts on automobile wheels improperly); *Amalgamated Meat Cutters v. Great Western Foods Co.,* 712 F.2d 122, 125 (5th Cir. 1983) (reversing arbitrator's reinstatement of over-the-road truck driver who drank liquor while on duty); *World Airways, Inc. v. International Bhd. of Teamsters,* 578 F.2d 800, 803-04 (9th Cir. 1978) (vacating arbitrator's reinstatement of airline pilot who had been demoted for judgmental errors).

tration award violated public policy. 108 S. Ct. at 374. In *Misco*, the court of appeals had considered evidence that traces of marijuana were found in the employee's car in determining that the employee could have been under the influence of drugs while operating dangerous machinery at work. The arbitrator had specifically found the evidence to be inadmissible. The Supreme Court determined that the court of appeals' factfinding and inference drawing was improper, as such was to be done only by the arbitrator. *Id.*

In contrast to *Misco*, we do not consider any evidence specifically excluded by the arbitrator in determining that the arbitration award does not violate a well-defined public policy. The record completely supports the arbitrator.

III. CONCLUSION

The arbitrator's award draws its essence from the contract and it in no way contravenes the public policy of the nuclear plant safety. Any other public policy argument made by Daniel does not stand up under analysis. Accordingly, the judgment of the district court affirming the arbitrator's award is affirmed.

ROSS, Senior Circuit Judge, dissenting.

I respectfully dissent. The district court's opinion affirming the arbitrator's award should be reversed, as the arbitrator's award violates public policy.

The majority finds "the illogic and weakness" of Daniel's public policy argument to lie in the "unwarranted and unsupported assumption that the NRC actually evaluated, expressly approved, or otherwise decided that the plan in question (the mini-IPAT) complied with NRC regulations * * *."[1] Such an assertion is contrary to the

[1] The majority repeatedly emphasizes its mistaken belief that the NRC has never in any way approved the screening procedures

evidence presented before the arbitrator. Gary Pendergraff, Superintendent of Security for Union Electric at the Callaway plant, testified before the arbitrator that the NRC asked to look at Union Electric's screening program, and after reviewing it "did not have any objections or problems [with] how we were doing things." The majority opinion also mistates and misconstrues the opinion of the arbitrator.[2]

Additionally, Daniel's counsel stated at oral argument before this court that since the grievances were filed in this case, the NRC has reviewed Union Electric's security plan, and has not objected to it. According to evidence presented by the unions, the mini-IPAT is still being used to screen employees of Union Electric at the Callaway plant. As noted in the majority opinion, Union Electric committed to the NRC in its security plan that it would use a reliable and valid written personality test to screen employees. Had the NRC found Union Electric to be in violation of this commitment, it could have revoked Union Electric's operator license. However, after reviewing Union Electric's security program, and knowing that Union Electric used the mini-IPAT, the NRC

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used by Union Electric. For example, the majority states "[t]he only evaluation of the screening plan was one rigorously tested in the adversary process before the arbitrator and reviewed by the district court and this court." Further, the majority states "[w]hat is quite clear * * * is that the NRC did not aprpove the mini-IPAT."

[2] The majority mistakenly says that the results of the mini-IPAT could be reproduced by flipping a coin, citing the arbitrator's opinion at 92-94. What the arbitrator says is that the predictive utility of the test over random selection "is not substantial." The majority also states "we are skeptical whether the NRC would have approved the mini-IPAT, because the mini-IPAT provided for no avenue of appeal by a personal interview, and thus, as the district court noted, did not satisfy the ANSI standards." The majority implies that ANSI standards require a clinical interview—they do not. Neither the arbitrator nor the district court stated that ANSI standards require an interview.

did not and has not withdrawn Union Electric's license. At the very least, the NRC has implicitly approved of Daniel and Union Electric's use of the mini-IPAT.

In accordance with the principles set out by the Supreme Court in *W. R. Grace & Co. v. Local Union 759, Int'l Union of the United Rubber, Cork, Linoleum & Plastic Workers*, 461 U.S. 757, 764 (1983), this court has previously recognized as a well-defined and dominant public policy that the NRC maintains control over the regulation of security matters during the construction of nuclear power plants in order to protect the health and safety of the general public. *See Iowa Elec. Light & Power Co. v. Local 204 of the Int'l Bhd. of Elec. Workers*, 834 F.2d 1424 (8th Cir. 1987). In that case, we stated:

> From the very beginning of the nuclear power industry, the safety of nuclear power plants has been a matter of public concern. The federal government has been heavily involved in the planning, construction, and operation of nuclear plants since the enactment of the Atomic Energy Act and creation of the Atomic Energy Commission (AEC) in 1954. The NRC, the successor to the AEC, has promulgated volumes of safety rules that govern all nuclear power plants. *See, e.g.*, 42 U.S.C. § 2131-41; 10 C.F.R. pt. 50. Each plant, in turn, develops its own more detailed specifications and regulations in order to obtain and then maintain its federal license, * * * Any violation of any rules must be reported to the NRC; the NRC responds by issuing enforcement penalties against the offending facility.
>
> The Supreme Court has recognized the critical role of this federal safety system for nuclear power plants: "The Commission's prime area of concern in the licensing context . . . is national security, public health, and safety." *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council*, 435 U.S. 519, 550, 98 S. Ct. 1197, 1215, 55 L.Ed.2d 460

> (1978) (citing 42 U.S.C. §§ 2132, 2133, 2201). The "regulatory scheme . . . is 'virtually unique in the degree to which broad responsibility is reposed in the [NRC] . . . .'" *Carstens v. NRC*, 742 F.2d 1546, 1551 (D.C.Cir.1984) (quoting *Siegel v. AEC*, 400 F.2d 778, 783 (D.C.Cir.1968)), *cert. denied*, 471 U.S. 1136, 105 S.Ct. 2675, 86 L.Ed.2d 694 (1985).

Id. at 1428.

The majority opinion flies right in the face of this very recent Eighth Circuit opinion. There is no question but that to allow an arbitrator, who has no apparent experience or expertise in the fields of nuclear safety or psychological testing, to second-guess the validity of security procedures which have been approved by the NRC would thwart such a public policy.

Further, it must be noted that the majority's opinion fails to consider the practical aspects of this case. As stated by the majority, Daniel was obligated by Union Electric to use Union Electric's screening procedures or develop its own procedures which met Union Electric's approval and conformed with ANSI standards. Daniel, in good faith, chose to use the screening procedures which were developed by Union Electric and which were part of Union Electric's security program approved by the NRC. The unions apparently did not object to the mini-IPAT until after the employees' test results were known and the grievants were dismissed. At that time, construction at the Callaway plant was nearing completition and nuclear material was being introduced into the plant. At such a point it would not have been possible for Daniel to suspend work until it could develop a new screening test which would be acceptable to the unions, Union Electric and the NRC.

Additionally, the majority is concerned that Daniel could have provided escorted access to those employees who failed the psychological test, rather than dismiss

them. This case concerns the grievances of over 150 employees who were denied unescorted access. Certainly it would not have been a practical or feasible alternative for Daniel to supply escorted access to all of these employees.

For these reasons, I dissent from the majority opinion.

A true copy.

Attest:

Clerk, U.S. Court of Appeals, Eighth Circuit.

APPENDIX B

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI
CENTRAL DIVISION

No. 86-4457-CV-C-5

DANIEL CONSTRUCTION COMPANY,
Plaintiff,

vs.

LOCAL 257, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO, et al.,
Defendants.

ORDER

[Filed Nov. 14, 1986]

This action concerns the enforceability of an arbitration award. Plaintiff Daniel Construction Co. ("Daniel") was the general contractor in charge of construction of Union Electric's Callaway Nuclear Power Plant in Callaway County, Missouri. The defendant Unions were the authorized bargaining representatives for certain employees of Daniel. The plaintiff and defendants were parties to a collective bargaining agreement ("Project Agreement") concerning labor matters for construction of the power plant. This dispute began when 157 employees, each belonging to one of the six defendant Unions, filed grievances complaining that Daniel violated the Project Agreement when it discharged them from employment because they failed the psychological test for security clearance which would have afforded them unescorted access to the plant.

The matter proceeded to arbitration. On April 23, 1986, Arbitrator William Stix rendered a 157-page opinion, basically finding in favor of the Unions (although the grievances of nine employees who failed the "physical security test" and three illiterate employees who could not take the test were denied). Daniel now asks this Court to vacate the arbitration award and the Unions ask for its enforcement. All parties have filed cross-motions for summary judgment. The Unions have also moved for an award of attorney's fees.

In support of its motion to vacate the Arbitrator's decision, plaintiff has alleged that the Arbitrator's decision violated the public policy of the United States concerning nuclear safety. Plaintiffs also assert that the issues decided by the Arbitrator were not arbitrable under the Project Agreement, because Union Electric had final and complete authority to set security standards. The Court will consider this as a claim that the arbitration award did not draw its essence from the Project Agreement. Defendants, of course, present counter-arguments on both issues. After careful consideration of the Arbitrator's award, the briefs and supporting exhibits presented by the parties, the Court concludes that the plaintiff's motion for summary judgment will be denied, and the defendant's motion for summary judgment will be sustained. However, the Union's motion for an award of attorney's fees will be denied.

Standard for Summary Judgment

The standard for determining the propriety of summary judgment under Rule 56(a) is well-settled. Summary judgment should be entered only when it is clear that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law. Here, the parties have agreed that this is an appropriate case for summary judgment, even though each side refutes the other's presentation of the

facts. It is also clear that the arbitrability of a particular labor dispute is a question of law for the courts to decide. *Chauffeurs, Teamsters and Helpers, Local Union v. C.R.S.T., Inc.*, 780 F.2d 379, 381 (8th Cir. 1985). Hence, this Court may properly reach the merits on summary judgment.

Standard for Review of Arbitration Awards

Since arbitration is favored as a means of resolving labor disputes, the Eighth Circuit has repeatedly held that a court's review of an arbitration award is extremely limited. *E.g. McGraw Edison, Wagner Div. v. Local 1104*, 767 F.2d 485, 487 (8th Cir. 1985); *United Electrical, Radio and Machine Workers of America, Local 1139 v. Litton Microwave Cooking Products*, 728 F.2d 970 (8th Cir. 1984); *Lackawanna Leather Co. v. United Food & Commercial Workers*, 706 F.2d 228 (8th Cir. 1983).

The United States Supreme Court has recently echoed the general principles it set forth in three seminal cases which have come to be known as the "Steelworkers Trilogy": *United Steelworkers of America v. American Manufacturing Co.*, 363 PU.S. 564 (1960); *United Steelworkers of America v. Warrior & Gulf Navigation Co.*, 363 U.S. 574 (1960); and *United Steelworkers of America v. Enterprise Wheel & Car Corp.*, 363 U.S. 593 (1960).

In *W.R. Grace & Co. v. Local 759, Int'l Union of Rubber Workers*, 461 U.S. 757 (1983), the Supreme Court reiterated that "a federal court may not overrule an arbitrator's decision simply because the court believes its interpretation of the contract would be a better one. *Id.* at 764. A reviewing court must uphold an arbitrator's award so long as it "draws its essence from the collective bargaining agreement." *Id.* This is true even if the basis of the arbitrator's decision is ambiguous. *Id.* In determining whether the arbitration award draws

its essence from the contract, a reviewing federal court must broadly construe the collective bargaining agreement's grant of power to the arbitrator. *International Bro. of Elec. Workers, Local No. 53 v. Sho-Me Power Corp.*, 715 F.2d 1322, 1325 (8th Cir. 1983). This broad grant of power extends to authorize the arbitrator to "interpret, construe or apply the provisions of a collective bargaining agreement if the contract does not limit his authority to do so." *Id.*, n. 2 *citing Vulcan-Hart Corp. v. Stove, Furnace & Allied Appliance Workers Int'l Union, Local 110*, 671 F.2d 1182 (8th Cir. 1982). Further, courts cannot interfere with the arbitrator's interpretation "unless it can be said with positive assurance that the contract is not susceptible of the arbitrator's interpretation." *Sho-Me Power*, 715 F.2d at 1326.

Despite this mandatory deference, a court may not enforce a collective bargaining agreement that is contrary to public policy. *W.R. Grace & Co.*, 461 U.S. at 766. "Such a public policy, however, must be well-defined and dominant, and is to be ascertained by reference to the laws and legal precedents, and not from general considerations of supposed public interests." *Id.*

In light of this legal authority setting forth the standard of review, the Court must now determine whether the arbitrator's award violates a well-defined public policy. If not, the award cannot be set aside unless it is determined that it does not draw its essence from the project agreement.

Public Policy

Plaintiff has alleged that the arbitrator's decision violates the United States public policy which promotes the security and safety of nuclear power plant sites. Citing to various sections of Title 42 of the United States Code, plaintiff demonstrates support for this policy by reference to established law, as required by *W. R. Grace & Co.*, 461 U.S. at 766.

The argument that plaintiff sets forth is that the arbitrator's opinion constitutes an imposition of the arbitrator's own security plan, which usurps the specific responsibility of the Nuclear Regulatory Commission (NRC). Thus, plaintiff disputes the arbitration award, claiming that it will impair safety and security at the Calloway Plant. While the defendants do not challenge the importance of such a policy, they counter that the arbitrator's decision actually promotes safety and security at the Calloway Nuclear Power Plant. Defendants argue that the screening test used by Daniel could not promote safety because it was not a valid indicator of who was and who was not a security risk. Both parties note that the NRC has endorsed the standards of the American National Standards Institute (ANSI) as the appropriate minimum industry standard for employee screening. The ANSI standards for psychological evaluation are as follows:

> (e) *Psychological Evaluation*: Reliability and stability shall be indicated by the results of a reliable and valid written personality test or by other professionally accepted clinical assessment procedure administered by or under the supervision of a licensed psychologist or psychiatrist cognizant of this standard.

ANS/ANSI 3.3-L982, § 5.4.5 at 10-11.

After considering extensive expert evidence, the arbitrator determined that the written psychological screening test used, the mini-IPAT battery, did not have sufficient validity to constitute an appropriate screening device. The arbitrator cited statistical evaluations in concluding that the predictive utility of the test over random selection was not substantial. Not only would a large number of those who failed the written test actually be considered stable individuals but, similarly, other employees given clearance would actually be unstable. Fur-

ther, the arbitrator concluded that the lack of a provision for at least an optional clinical interview for those who failed the written psychological test precluded the psychological screening from being reasonable. It is this finding of invalidity of the valuation tool used that supports the defendants' argument that the arbitration award does not violate a public policy of safety and security. In fact, an invalid psychological test does not satisfy the ANSI standard set forth above.

Plaintiff has cited to several cases from other circuits where an arbitration award was deemed to violate public policy. These cases all involved behavior that clearly was counterproductive to the standard public policy. *See, e.g. Amalgamated Meat Cutters v. Great Western Food Co.*, 712 F.2d 122 (5th Cir. 1983) (truck driver drinking alcohol on the job); *Misco, Inc. v. United Paperworkers International Union, AFL-CIO*, 768 F.2d 739 (5th Cir. 1985) (employee smoking marijuana while operating dangerous machinery); *Local No. P-1236 Amalgamated Meat Cutters v. Jones Dairy Farm*, 680 F.2d 1142 (7th Cir. 1982) (employer's rule prohibiting the reporting of unsanitary conditions); *World Airways, Inc. v. International Brotherhood of Teamsters*, 578 F.2d 800 (9th Cir. 1978) (airline pilot exercising poor judgment).

However, in this case, the arbitrator evaluated the evidence and concluded that an invalid psychological screening test violated the Project Agreement. Contrary to the cases cited by plaintiff, this decision would promote the policy of security and safety. *W.R. Grace & Co.*, 461 U.S. at 766, states that courts must refrain from enforcing contracts which, *as interpreted by the arbitrator*, violate explicit public policy. In the present case, the enforcement of the arbitrator's award would not, under principles of extremely limited judicial review of arbitration awards, violate the public policy in favor of safety and security at nuclear power plant locations.

The Arbitration Award's Relation to the Project Agreement

Plaintiff's claim that the issues involved were not arbitrable under the Project Agreement must be rejected. The presumption of arbitrability where the collective bargaining contract contains an arbitration clause is well-established. *E.g A T & T Technologies, Inc. v. Communications Workers of America*, 106 S.Ct. 1415 (1986); *Steelworkers Trilogy*, 363 U.S. 593. "This presumption of arbitrability for labor disputes recognizes the greater institutional competence of arbitrators in interpreting collective bargaining agreements, furthers the national labor policy of peaceful resolution of labor disputes and thus best accords with the parties' presumed objectives in pursuing collective bargaining." *A T & T Technologies*, 106 S.Ct. at 1419 *quoting Schneider Moving & Storage Co. v. Robbins*, 466 U.S. 364, 371-72 (1984).

Here, it is first necessary to determine the scope of the arbitration clause in the Project Agreement. Art. VII § 1 of the Project Agreement provides for arbitration "[i]n the event that any dispute arises out of the interpretation or application of this Agreement, exclusive of questions of jurisdiction of work." In cases where there is such a broad clause, "[i]n the absence of any express provision excluding a particular grievance from arbitration, . . . only the most forceful evidence of a purpose to exclude the claim from arbitration can prevail." *Warrior & Gulf*, 363 U.S. at 584-85.

Art. II § 1 of the Project Agreement states that the management retained the right for "transfers and discharges of employees for cause." The arbitrator determined that the parties construed this as meaning that Daniel could *not* discharge employees *except* "for cause."

Art. II further provided, in § 4, as noted above, that the employer could "establish appropriate security, safety and job rules." Although the arbitrator found that this

clause did encompass security screening, he focused on the requirement that such rules be *appropriate.* This mandated that screening procedure be "reasonable and suited to [the] acomplishment of its purpose."

Once the arbitrator determined that the psychological test used was invalid and unreasonable, it followed that Daniel could not rely on Art. II § 4 or § 1 as authorizing the discharges. Hence, these employees were not discharged "for cause."

It is clear that the Project Agreement's broad arbitration clause empowered the arbitrator to determine whether the grievants were discharged "for cause." Thus, the Court concludes that the arbitrator's award draws its essence from the collective bargaining agreement. The arbitrator interpreted "cause" as synonymous with "just cause" and determined that *Daniel* could not impose unreasonable, arbitrary, or capricious procedures or rules on the employees. A court may not interfere with an arbitrator's interpretation unless "the contract is not suceptible of the arbitrator's interpretation." *Sho-Me Power*, 715 F.2d at 1326. Accordingly, for the reasons set forth above, it is hereby

ORDERED that the plaintiff's motion for summary judgment is denied. It is further

ORDERED that the defendants' motion for summary judgment and to enforce the arbitration award is sustained. It is further

ORDERED that the defendants' motion for an award of attorney's fees is denied.

/s/ Scott O. Wright
SCOTT O. WRIGHT
United States District Judge

November 14, 1986.

APPENDIX C

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF MISSOURI
CENTRAL DIVISION

No. 86-4457-CV-C-5

DANIEL CONSTRUCTION COMPANY,
Plaintiff,

vs.

LOCAL 257, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO, *et al.*,
Defendants.

ORDER

Pending before the Court is Plaintiff Daniel Construction Company's motion for reconsideration, pursuant to Rule 59e. Plaintiff has requested this Court to reconsider its order filed November 14, 1986, which granted summary judgment for the defendant unions and to enforce the arbitrator's award.

Plaintiff contends that the Court's decision was based on an error of law in analysis of the public policy issue. Plaintiff insists that the issue concerning the validity of screening procedures at Calloway Nuclear Plant was not arbitrable because the public policy of the United States is that all decisions concerning security practices at nuclear plants have been reserved exclusively to the Nuclear Regulatory Commission (NRC). In support of its motion, plaintiff has cited to four particular sections of Title 42 of the United States Code which authorizes the NRC to establish rules governing the use of nuclear ma-

terials as are necessary to promote security and safety, and to issue licenses. Plaintiff asserts that the arbitrator was thus "preempted from considering the merits" of the security plan.

The cases cited by the plaintiff do not directly support this argument. As stated in this Court's previous order, both parties noted that the NRC endorsed the ANSI standards as an appropriate minimum industry standard. Section 5.4.5 refers to psychological evaluations and requires a *valid* written personality test or clinical assessment. However, it does not appear that the NRC had promulgated rules either approving or mandating a certain psychological test to be used. It certainly is not "clear" that the determination of the validity of the particular test used was preempted by the NRC, and excluded from the broad arbitration provision in the project agreement.

The Court again recognizes the presumption of arbitrability where the contract contains a broad arbitration clause. *E.g. AT&T Technologies, Inc. v. Communication Workers of America*, 106 S.Ct. 1415 (1986). Accordingly, it is hereby

ORDERED that the plaintiff's motion for reconsideration is denied.

/s/ Scott O. Wright
SCOTT O. WRIGHT
United States District Judge

December 22, 1986.

APPENDIX D

UNITED STATES COURT OF APPEALS
FOR THE EIGHTH CIRCUIT

No. 87-1167

DANIEL CONSTRUCTION COMPANY, ETC.
Appellant,

vs.

LOCAL 257, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS, AFL-CIO, *et al.*,
Appellees.

Appeal from the United States District Court
for the Western District of Missouri

Appellant's petition for rehearing en banc has been considered by the Court and is denied. Judge Bowman, Judge Wollman and Judge Beam would have granted the petition for rehearing en banc.

Petition for rehearing by the panel is also denied.

November 16, 1988

Order Entered at the Direction of the Court:

/s/ Robert D. St. Vrain
Clerk, U.S. Court of Appeals, Eighth Circuit.

APPENDIX E

ARBITRATION

FMCS No. 84K/29795

DANIEL CONSTRUCTION COMPANY,
DIVISION OF DANIEL INTERNATIONAL CORPORATION,

and

LOCAL 257, ELECTRICAL WORKERS
LOCAL 36, SHEET METAL WORKERS
LOCAL 513, OPERATING ENGINEERS
LOCAL 1158, PAINTERS
LOCAL 662, LABORERS, and
LOCAL 2, ELECTRICAL WORKERS

Before
WILLIAM STIX
Arbitrator

For the Company:

Melvin Hutson and Alfred Robinson
(Thompson, Mann & Hutson), Attorneys.

For the Unions:

Marilyn S. Teitelbaum, Attorney, and Chris Lay,
Legal Assistant (Schuchat, Cook & Werner).

ARBITRATOR'S OPINION AND AWARD
WITH LIMITED RESERVATION OF JURISDICTION

NOTICE

This award is intended for circulation solely to the Company, the Unions, the Grievants, and their respective attorneys and advisers, who are earnestly requested not to circulate it to anyone else. Statements and opinions as to the psychological test, expressed herein by the arbitrator (who is a lawyer and not a psychologist), have applicability solely to the resolution of the issues submitted to the arbitrator by the Company and the Unions, and are inapplicable, immaterial, and unintended in any other context.

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ARBITRATION

FMCS No. 84K/29795

DANIEL CONSTRUCTION COMPANY,
DIVISION OF DANIEL INTERNATIONAL CORPORATION,

and

LOCAL 257, ELECTRICAL WORKERS
LOCAL 36, SHEET METAL WORKERS
LOCAL 512, OPERATING ENGINEERS
LOCAL 1158, PAINTERS
LOCAL 662, LABORERS, and
LOCAL 2, ELECTRICAL WORKERS

Before
WILLIAM STIX
Arbitrator

For the Company:

Melvin Hutson and Alfred Robinson
(Thompson, Mann & Hutson), Attorneys.

For the Unions:

Marilyn S. Teitelbaum, Attorney, and Chris Lay,
Legal Assistant (Schuchat, Cook & Werner).

I. INTRODUCTION

A. *What the case is about—Exclusion of employees for lack of security clearance*

This case arises out of the final phase of the work of constructing the Callaway nuclear power plant (in Callaway County, Missouri) by the Company, as general con-

tratcor, and its subcontractors for Union Electric Company, the owner.

As a condition of obtaining a license from the Nuclear Regulatory Commission to operate the Callaway plant, it was necessary as a practical matter, and perhaps also legally, that in its license application Union Electric commit itself to establish and maintain a procedure for screening all persons who would have "unescorted access" to the sensitive areas of the plant. With the exceptions noted below, the screening consisted of three elements:

> A background investigation, covering employment history and possible criminal record.
>
> A written multiple-choice psychological examination comprising 429 items, which required 3 to 4 hours or more to complete.
>
> A written test on physical security procedures (inspections, badges, card-operated doors, alarms, etc.) used at the plant.

The exceptions to the above three-element screening were: first, the background investigation and psychological test were not required of a person who could supply a letter from his present employer that he had been continuously employed by that employer for the three years immediately preceding and was of good character; second, if an individual had been cleared in screening by another employer, that screening could be accepted by Union Electric is lieu of its own.

The terms of Union Electric's license required that as soon as nuclear fuel was brought to the plant site, unescorted access to the plant be restricted to persons having security clearance.

Nuclear fuel was first introduced at the plant in early April, 1984. Union Electric had started screening of its own employees (and of applicants for employment) several years earlier. Screening of the "contractor" em-

ployees of the Company and its subcontractors was initiated only several months before April 1984. Although employees had been informed that those who had not obtained security clearance would be denied unescorted access upon the introduction of nuclear fuel, April 12, 1984 was the first day that such employees were actually excluded.

Since the plant was by that time nearing completion, the number of construction workers had been declining rapidly and thereafter the number of construction workers (and probably also the man-hours of construction work per week or month) continued to do so.

Terms and conditions of construction employment at the plant site were governed by the Project Agreement entered into in 1975 between the Company and 18 labor organizations, including the six which are parties to this case. The Project Agreement declares that the Company will not contract out to a subcontractor who fails to agree to be bound by it, and also that "local" agreements of the signatory unions shall be recognized except as modified by it.

In this case some 150-odd grievants, each belonging to one of the six unions listed in the caption, complain that the Company violated the Project Agreement when it excluded them from further employment on the construction project, allegedly for lack of security clearance. As "defenses" the Company raises the contentions mentioned a little further on under the caption, "Summary of Preliminary Issues," and also, in substance, that the screening procedure was reasonable and appropriate.

B. *Chronology of Proceedings*

Of the 102 actual grievances in the record (Jt. Ex. 3), 88 were filed on or before April 20, 1984.

The hearing, held in Jefferson City, Missouri took ten days,—February 18-23 and April 8-12, 1985.

A stenographic transcript (2165 pages) was made, the cost of which was shared equally by the Company and the Unions. The exhibits comprise a stack of documents two and a half feet high.

At the end of the hearing it was agreed that some corrections to Company Exhibit 11 would be supplied and that, in connection with that exhibit, the Company could "submit any original documents not already in the record . . . bearing on the reason for termination." Company counsel supplied additional information by a letter of May 24; Unions' counsel by letter dated June 3 raised various objections thereto. The objections have been noted and have been, or will be reviewed (even if not expressly ruled on) when and if the information to which they relate is under consideration.

By agreement, the parties filed and exchanged principal briefs early in July and reply briefs in late July. (The arbitrator, anticipating that he would be on vacation from August 15 to September 15, had informed the parties that he probably would not be able to start begin work on the case until his return.) The Company's briefs aggregate 62 pages, the Unions' 241 pages.

Late in July the Unions filed a motion to strike, or that the arbitrator disregard, a number of specified statements made in the Company's principal brief which, the Unions contend, are not supported by the record. Thereafter the Company filed a response. In reviewing the evidence, and the parties' arguments based on it, the arbitrator has taken heed of the contentions made in the Union's motion and in the Company's response.

At the beginning of the hearing the parties agreed that, if the arbitrator were to find that the Unions were entitled to a remedy, and if the remedy might involve complications, he could reserve jurisdiction for four months, subject to extension if needed.

In the caption of its briefs the Union designates the employer as "Daniel Construction Company, a division of Daniel International Corporation, *and its Contractors and Subcontractors.* (my emphasis). Daniel's "contractors and subcontractors" were not previously designated as parties. However, the case was tried and briefed by both parties as though the Company had the same responsibility, if any, for the termination of employees of its subcontractors as for termination of its own employees; at no point was there any disclaimer of responsibility by the Company on the ground that a large number and perhaps most of the grievants (e.g., all 52 grievants who are members of IBEW Local 257) were employees of one of the subcontractors.

C. *Summary of Preliminary Issues*

Most of the testimony and of the exhibits relates to the reasonableness of the psychological test administered to the Company's employees. Whether that issue has to be decided depends on resolution of several preliminary issues.

1. *Is the case moot?*

The Company contends that prior to taking the psychological test, its employees signed a document which constitutes a waiver of any claim against the Company arising out of use of the test results. The Union argues that the instrument does not constitute such a waiver.

2. *Were Grievants "laid off" for lack of work?*

The Company contends that all the separations were layoffs occasioned by the rapidly decreasing need for manpower as the project neared completion. The Union, while conceding that the need for manpower was diminishing, gives numerous reasons why the separations should not be considered layoffs.

3. *Were the terminations beyond the Company's control so as to relieve it of responsibility?*

The Company maintains that the security screening procedure was established by Union Electric and mandated by the NRC, and that, since it had no choice but to comply, it has responsibility for denial of clearance to Grievants. The Union argues that the Company was not locked in to use of the screening procedure offered to contractors by Union Electric, but could instead have utilized a procedure of its own; further, that employees who did not receive clearance could have been kept on the job if they had been furnished escorts; and, finally, that by virtue *W.R. Grace & Co.* v. *Local 759*, 461 US 757 (1983), the Company must comply with its collective bargaining obligations irrespective of any other conflicting contractual obligations it may have.

4. *Were the terminations authorized under the Company's contractual right to establish "appropriate security . . . rules?*

The Company argues that the screening procedure was authorized by this clause of the contract. The Union asserts that security-risk screening was never mentioned in the contract negotiations and, moreover, that the procedure was "established" by Union Electric rather than by the Company.

5. *If the terminations were discharges, could they have been "for cause", since no employee misconduct was involved?*

The Company maintains that, if the separations were not layoffs, they were discharges "for cause". The Union contends that "for cause" necessarily imports employee misconduct and that the Company had no other contractual authority to terminate grievants.

II. RELEVANT DOCUMENTS ESTABLISHING RIGHTS AND OBLIGATIONS

A. *Pertinent Contractual Provisions*

In September 1975, prior to start of work on the Callaway project, Daniel International, Inc. signed a "Project Agreement" with 18 craft construction unions, to remain in effect for the duration of the project.

Article I, Section 1 provides that the employer shall not be required to sign any other agreement with other unions during the existence of the project and further provides:

> Local union working agreements shall be recognized except as modified by the provisions of this Agreement.

Article II, Management Rights, provides in part:

> Section 1. The Employer retains full and exclusive authority for the management of its operations. Except as expressly limited by the terms of this Agreement, the Employer retains the right to direct the work forces, including but not limited to the hiring of personnel, the selection of all supervisory employees promotions, transfers and *discharge of employees for cause* . . . (my emphasis).
>
> * * * *
>
> Section 4. The Employer has the right to maintain flexibility in manpower accounting, utilize work measurement techniques, and establish appropriate security, safety and job rules . . .

Article VI, Section 3 provides:

> The working steward shall not be discriminated against because of his activities in performing his duties as steward, and except as otherwise provided in local agreements, shall be the last employee in

> his craft to be laid off in any reduction of the force. Stewards will be subject to discharge to the same extent that other employees are only after notification to the Union representative . . .

Article VII provides a grievance procedure which calls for arbitration if the parties are unable to settle the matter by negotiation. Section 3 of this Article provides:

> . . . A decision by the arbitrator shall be rendered in writing within a reasonable time after the close of the proceeding. The decision by the arbitrator shall be final and binding upon all parties to this Agreement; provided, however, that the arbitrator shall not have the authority to alter or amend the provisions of this Agreement in any way.

The article provides that the reasonable expenses and fees of the arbitrator shall be born equally by the parties.

B. *Federal and Other Guides Pertaining to Security Screening for Unescorted Access*

Certain rules and regulations of the United States Nuclear Regulatory Commission ("NRC") are set out in Part 73 of Title 10, Chapter 1, of the Code of Federal Regulations. (Co. Ex. 1). Section 73.1, entitled "Purpose and Scope", provides in part:

> (a) *Purpose*: This part prescribes requirements for the establishment and maintenance of a physical protection system which will have capabilities for the protection of special nuclear material at fixed sites and in transit and of plants in which special nuclear material is used . . . against acts of radiological sabotage and to prevent the theft of special nuclear material [by persons inside and outside the facility].

Section 73.55, provides that an applicant seeking an operating license and filing after February 24, 1977 shall include in the physical security plan required by another

section the information identified in paragraphs (a) through (h) of Section 73.55 and, if the applicant receives an operating license, shall comply with the provisions of the section after receipt of the license. These paragraphs are captioned as follows:

> (a) General Performance Objective and Requirements
>
> (b) Physical Security Organization
>
> (c) Physical barriers
>
> (d) Access requirements
>
> (e) Detection aids
>
> (f) Communication requirements
>
> (g) Testing and maintenance
>
> (h) Response requirement

Notwithstanding the considerable detail included under these captions, there is no specific requirement for screening of personnel other than those in the security force.

On November 26, 1977, the Chief, Reactor Licensing Branch issued a memorandum for branch "members" stating (Co. Ex. 4):

> Screening of individuals granted unescorted access to the protected area helps establish the truthworthiness of employees, prospective employees, and contractors, and reduces the vulnerability of the facility from the threat of an insider. As a minimum, screening programs should meet the guidance in American National Standard, ANSI N18.17, "Industrial Security for Nuclear Power Plants."
>
> * * * *
>
> . . . unescorted access to the protected area may be granted to employees of a licensee and its contractors based on the reliability established by three (3) con-

> tinuous years of trustworthy employment. This method of establishing reliability is considered to be equivalent to the preemployment screening of ANSI N18.17-1973. . .

A year later, on November 6, 1978, the same Branch Chief in another memorandum reiterated reference to the screening program described in ANSI N18.17-1973 Section 4.3 (Co. Ex. 5)

In January 1978 NRC published an unsigned staff memorandum entitled "Security Plan Evaluation Report Workbook, Revision 1". (Co. Ex. 3) The introduction says the Workbook was developed to provide (1) an aid to the evaluation of Licensee/Applicant Physical Security Plans, and (2) the single source for preparing the SPER (Security Plan Evaluation Report). Section 1.3.1 of this Workbook reads in part:

> 1.3.1 Personnel Reliability
>
> Acceptance Criterion 1.3.1.A: The licensee shall develop and conduct a screening program for all personnel who are authorized for unescorted access to the protected area. As a minimum, this program shall follow the employee screening guidance in American National Standard ANSI N18.17, "Industrial Security for Nuclear Power Plants." . . . A contractor screening program is acceptable if it can be shown that the program provides coverage equivalent to or greater than ANSI N18.17.
>
> Security Plan Review:
>
> A) Confirm that the screening program is at least equivalent to ANSI 18.17. An equivalent program should include a preemployment investigation for adverse character traits, a preassignment examination to identify aberrant behavior, and continued observation during assignment for indications of aberrant behavior. Particular emphasis should be given to

> contractor personnel. The burden of verifying the adequacy of contractor screening programs rests with the licensee (applicant). An unverified statement by the contractor that he provide equivalent screening is *not* acceptable. (sic) The licensee (applicant) must provide a description of the screening procedures used, including descriptions of accepted contractors' screening procedures.

The pertinent provisions of ANSI N18.17 as updated in 1982, are set out later.

In August 1982, the Division of Safeguards, Office of Nuclear Material Safety and Safeguards of the NRC, published a document known as NUREG-0908 entitled, "Acceptance Criteria for the Evaluation of Nuclear Power Reactor Security Plants." (Co. Ex. 2) The introductory abstract of this document says:

> This guidance document contains acceptance criteria to be used in the NRC license review process. It contains specific criteria for use in evaluating the acceptability of nuclear power reactor security programs as detailed in security plans.

Despite its designation, this document is not a "regulation". It sets out guidelines, keyed to paragraphs (a) through (h) of 10 CFR Section 73.55. While it provides for training of non-security personnel in plant security matters, it says nothing about screening.

"ANSI N18.17-1973" (Co. Ex. 6) was issued in 1973 by a subcommittee of the American Nuclear Society Standards Committee and approved by the American National Standards Institute, Inc. It is prefaced by the following:

> An American National Standard implies a consensus of those substantially concerned with the scope and provision. An American National Standard is intended as a guide to aid the manufacturer, consumer, and the general public . . .

Of the 51 persons named as having participated in formulation and review of the standard, 43 are identified by organizational affiliation and 8 are not; but none is shown as affiliated with labor and none is shown as having a medical or psychological degree. The Foreword says in part:

> This standard is intended to provide criteria for the industrial security programs for nuclear power plants . . .

Under the topic "Administrative Control" the standard provides:

> 4.3 Employe Screening . . . These procedures shall include, as a minimum, the following provisions:
>
> (1) an investigation . . .
>
> (2) examination by a licensed psychiatrist or physician, or other person professionally trained to identify aberrant behavior . . .
>
> (3) continued observation of all employees . . .

A revised version of ANSI N18.17-1973 was issued on July 16, 1982, designated ANS/ANSI 3.3.1982 (Co. Ex. 7). Again there is no evidence of participation by psychiatrists, psychologists, or labor organization representatives. The "screening" section of the standard is more detailed than in the earlier version, and states in part (section 5.4.5):

> Personnel screening shall be conducted in-depth according to the sensitivity of the areas to which unescorted access is to be permitted.
>
> * * * *
>
> A reputation of reliability and trustworthiness shall be questioned if the screening reveals any of the following:
>
> (1) willful omission or falsification of information . . .

(2) use of . . . drugs or excessive use of alcohol.

(3) a criminal conviction that could cause concern . . .

(4) history of mental illness or emotional instability that may cause a significant defect in the individual's judgment or reliability.

(5) any evidence of coercion, influence or pressure that may be applied by outside sources . . .

(6) any other information that would adversely reflect upon . . . reliability and trustworthiness . . .

The screening program shall consist of the following items:

(a) Previous Employment: . . .

(b) Education: . . .

(c) Criminal Conviction Record. . . .

(d) References . . . checks shall be made both with those provided by the individual as well as those not provided by the individual (developed).

(e) Psychological Evaluation: Reliability and stability shall be indicated by the results of a reliable and valid written personality test or by other professionally accepted clinical assessment procedure administered by or under the supervision of a licensed psychologist or psychiatrist cognizant of this standard.

(f) Continued Observation: . . .

The ANSI standard also provides:

5.4.5.3 Security Training. Each person authorized unescorted access shall receive appropriate security training with particular emphasis on those matters for which the person has responsibility. This training shall be conducted by or under the direction of

the owner organization prior to initial unescorted access authorization, and retraining shall be conducted annually.

C. *Union Electric's Security Plan*

In anticipation of completion and operation of the Callaway Plant, Union Electric more than four years ago presented to the NRC a security plan for approval. According to Gary Pendergraff, Superintendent of Security for Union Electric at the Callaway Plant, the details of a security plan submitted to NRC becomes a commitment on the part of the operating utility when a license is granted.

In 1983 Union Electric upgraded its "commitment" to the standards set out in the 1982 revision of ANSI N18.17. Pendergraff stated that changes can be made in a commitment only with great difficulty, and, after licensing, are permitted only if the changes do not decrease security. He testified that if the utility violates the commitment it can be cited or fined, and becomes subject to withdrawal of its operator's license.

The Company submitted in evidence an October 21, 1983 Union Electric memorandum setting forth Union Electric's "Security Screening Program for Unescorted Access". (Co. Ex. 8). Following the guidelines of ANSI N18.17, this Program calls for a security background investigation, verification of previous employment, verification of education, a check on the possibility of a criminal conviction record, a check of references provided by the individual as well as of references "developed" through investigation, and a psychological evaluation. As to the psychological evaluation, the program says:

> Behavioral reliability and stability shall be substantiated by the results of a reliable and valid written personality test or by other professionally accepted clinical assessment procedure administered by or under the supervision of a licensed psychologist or psy-

> chiatrist cognizant of ANSI 3.3, Security for Nuclear Power Plants. All non-Union Electric personnel with less than three years continuous employment with present employer and all Union Electric employees shall successfully complete psychological evaluation. Non-Union Electric personnel who have at least three continuous years of trustworthy employment with their present employer shall be exempt from psychological evaluation if substantiating documentation is provided to Union Electric by their current employer.

According to Pendergraff, Union Electric is forbidden to disclose the actual details of the security plan it files with the NRC. He testified, however, that it included provisions which were intended to conform to ANSI N18.17, 1982 version.

For its own employees, Union Electric screening included:

> First: Filling out of a questionnaire by its employees (or applicants for employment) with respect to education, prior employment, family situation, and prior criminal record, if any.
>
> Second: Following a lecture, with a slide show, and some reading of a booklet, a written test on plant access rules and emergency procedures, alarms, etc. This is called the Security Test.
>
> Third: A psychological test.

The "background" questionnaire (education, etc.) was sent by Union Electric to Equifax, a national investigating company, which after making its investigation, sent a report to Pendergraff. The report included detail as to the findings by Equifax concerning the individual's education, previous employment, criminal records, and reference checks. Equifax made no evaluation; this was left to Pendergraff.

To provide a psychological written test as a part of its screening program, Union Electric selected the Institute for Personality and Ability Testing, Inc. of Champaign, Illinois ("IPAT"). More detail as to the tests devised by IPAT is set out later.

D. *Steps By Nuclear Regulatory Commission Toward Defining By Rule the Elements of a Screening Program*

On March 17, 1977 (42 FR 14880) the NRC published proposed amendments to its regulations which would establish an authorization program for unescorted access. Written comments were invited; a hearing board was established; and the hearing board in April 1979 made a report covering an authorization program. The board recommended, inter alia, that the NRC issue its own rule, instead of seeking a revision of ANSI N18.17, and that a future screening rule include, inter alia, "a requirement for a psychological screening program, which should include as a minimum: a written psychological test, an interview by a psychologist with any applicant indicated by the test to have possible emotional problems, and a system for continued observation by supervisors", and also a requirement for an appeal procedure. Union Ex. 20, 49 FR 30926 (Aug. 1, 1984). On August 1, 1984 the NRC promulgated a proposed program for authorization of unescorted access and invited comments from the public. 49 FR 30926 ff. (One commissioner stated that he did not approve the "psychological assessment and behavioral observation elements of the proposed rule"; another expressed apprehension about the effect on employee morale of the proposed requirement for behavioral observation.) With respect to psychological assessment the proposed rule says:

> (d) *Psychological Assessment.* . . . This program, as a minimum, shall consist of

(1) Written personality tests which have been designed to furnish an objective evaluation of some of the major personality traits which influence individual and interpersonal behavior. Results of the personality tests shall be evaluated by a qualified and, if applicable, state-licensed psychologist or psychiatrist. The tests chosen shall have predetermined evaluation scales which are statistically proven to have a high degree of reliability, shall have been proven to be valid, shall meet the criteria of paragraph (d)(2) of this section, and shall comply with the employee selection procedure guidelines as described in "Uniform Guidelines on Employee Selection Procedures (1978)." 43 FR 38925 (August 25, 1978), 29 CFR Part 1607.

(2) Clinical interviews for individuals whose personality tests results are inconclusive or indicate abnormal personality traits. These interviews shall be administered and conducted by a qualified and, if applicable, state-licensed psychologist or psychiatrist.

. . .

During the first week of the hearing in this case the Union offered in evidence copies of 50-odd comments which were all that had been filed with the NRC at the time the Union obtained them. The Company, while objecting to admission of the comments in evidence, had compiled, indexed, and bound some 90-odd comments, including some filed after those offered by the Union. The Company objected to the admission of the comments on the grounds that there was no opportunity to cross-examine the comment writers and that the comments would not be representative because apparently many of them were filed in response to a call from an association of psychologists. The arbitrator stated that, while the comments were bulky and probably repetitious, he would find helpful comments by utilities operating nuclear plants and reasoned comments by professionals with evident credentials. The arbitrator then said he would consider

a limited number of the comments and invited each party to submit a list of the comments to be considered by the arbitrator. The Union submitted such a list; the Company did not. During the second week of the hearing, the Company furnished two additional volumes of comments, bringing the total comments to more than 140. As will appear later, the arbitrator has, in connection with the use of a clinical interview, made use of the comments. While the arbitrator has to some extent gone beyond those listed by the Union, the Union wanted to have all the comments considered, and the Company, in its brief, refers to various comments, although it had not submitted a list.

III. DISCUSSION AND RESOLUTION OF PRELIMINARY ISSUES

A. *The Grievances Are Not Moot*

The Company in its post-hearing brief contends for the first time that the grievances are moot because each Grievant assertedly released the Company from liability for damage of whatever kind arising out of the psychological test, by signing the "Information Release Form and Biographical Data Sheet".

The introductory portion of that form reads as follows:

Information Release Form
and
Biographical Data Sheet

Privacy Act Notice

The IPAT Unescorted Access Clearance Evaluation program requested by Union Electric Company is a voluntary program.

Purpose and Use of the Information You Provide

Information provided on these forms will be furnished to individuals in order to determine clearance

for Unescorted Access. The information obtained may be furnished to qualified third parties, as necessary, in the fulfillment of official responsibilities.

Effects of Nondisclosures

Authorization to use information is voluntary, but failure to provide authorization may result in a lack of further consideration for employment, clearance or access, or in the termination of employment.

To Whom It May Concern:

I hereby authorize IPAT, Inc., to use the information here provided for evaluation for Unescorted Access purposes.

I hereby release Union electric Company and IPAT, Inc., their employees and agents, from any and all liability for damage of whatever kind or nature which may at any time result to me through the use of the information provided, the evaluation of that information, or the use of this authorization.

It then calls for the employees's signature, name, social security number, current and prior marital status, race or ethnic origin, position applied for, and employment history for the preceeding three years.

I infer that the form was signed when employees were assembled to take the psychological test. There is no evidence that any explanation of the form was given orally.

The form does not make any reference to the psychological test answer forms, or to the information (if it can properly be termed such) to be supplied by the employee in answering the multitudinous questions on that test. While the second paragraph of the authorization/waiver form refers to "information provided on *these forms*" (my emphasis), I read that phrase as a reference only to the biographical information obtained from all

employees and not as a reference to the psychological test answer sheets. Indeed, there is no evidence that the answer sheets were distributed to employees taking the test in such proximity as to warrant reading "these forms" as a reference to the test answer sheets.

Second, as the Union persuasively argues, the Company's contention as to mootness comes too late in this proceeding to warrant consideration by the arbitrator. It was not mentioned in the Company's opening statement nor referred to at any time prior to filing of the Company's post-hearing brief. Elkouri, *How Arbitration Works*, 4th ed. 236, repeating the language of the previous edition, states:

> If a party materially changes its position from the grievance procedure to the arbitration stage in such a way that the other party is taken by surprise and finds difficult or impossible to present its case adequately, the arbitrator may take some appropriate action (such as granting a continuance or remanding the case . . . for further negotiations).
>
> Moreover, if a deviation from what occurred at the prearbitral stage actually constitutes the addition of a new issue or dispute that has not been previously discussed by the parties . . . and if this bypassing of the grievance procedure is objected to by one of the parties, the arbitrator will ordinarily refuse to dispose of the matter in his award.

If the new contention were solely one of law, it might be entertained. However, the assertion of mootness raises issues of fact (especially with respect to the Company's assertedly being an agent of Union Electric) as well as of law. Since the record is closed, the Union no longer has an opportunity to adduce pertinent evidence. Hence, the contention is not timely.

Third, the Union raises, among others the following further objections (fortified with citations) to introduction of the mootness issue:

The signing of the "release" was neither voluntary nor knowing; and, thus, is ineffective.

The waiver paragraph, if enforced, would constitute a unilateral change in the terms and conditions of employment and unlawful direct dealing with the employees in violation of the NLRA.

While these appear to have merit, I find it unnecessary to study and pass on them.

B. *Grievants Were Discharged, Not Laid Off*

A major contention made by the Company is that grievants were not discharged but were laid off for lack of work.

The events which gave rise to this arbitration occurred as the construction of the Callaway plant neared completion.

The following table, derived from the graphs in Co. Ex. 35, show in approximate numbers the employment peak at the project, and the subsequent decline, which became especially rapid beginning in April and May 1984:

End of	"Total plant"	"Total craft"
June 1979	3850	2850
June 1982	4375	2500
Dec. 1983	2765	1350
Feb. 1984	3180	1685
Mar. "	2760	1620
April "	2600	1275
May "	1800	675
June "	1600	640
July "	1320	520
Aug. "	960	420
Sept. "	800	395
Oct. "	720	310
Nov. "	400	110
Dec. "	350	105

The decline in number of workers was accelerated by the institution after May 23, 1985 of 12-hour shifts, and some 7-day weeks, for the purpose of diminishing the congestion that was occurring at the gates due to the time needed to process workers through the security procedures.

The Company contends that under the management rights article of the Project Agreement it has the right to lay off employees for any reason whatsoever. Although the term "lay off" is not used in that article, the Union does not controvert this position, except by asserting that the Agreement does not permit the Company, under the guise of a layoff, to discharge employees without just cause.

In support of its position and Company argues:

> First: Work was nearing completion; the number of workers required was decreasing steadily; there were few new hires (or re-hires) after grievants were sparated.
>
> Second: Although there were a limited number of new hires, or re-hires after grievants were separated, the total was dwarfed by the number of layoffs which took place concurrently.

It is clear, and undisputed, that:

> The job was winding down and in a matter of months substantially all the workers would have been laid off for lack of work.
>
> Regardless of the number of workers needed, employees who failed the security screening would not after implementation of the security screening have been permitted unescorted access to the sensitive areas of the plant.

It is arguable that Grievants' separations were occasioned by both these factors. However, for the following rea-

sons, I conclude that Grievants were discharged rather than laid off.

1. As early as March 9, in a letter to the Unions, the Company stated that employees who failed the security screening would "receive a reduction of force at the time the security procedure is implemented." (Union Ex. 51). At that time neither the date for implementation of the security procedure nor the number of workers needed in each craft could be predicted. Hence the Company was saying that, regardless of what its manpower needs might later be, upon implementation of the security procedure it would terminate employees who had failed any of the screening elements.

2. All or most of the grievants requested a "service letter". Section 290.140 of the Missouri statutes provides:

> Whenever any employee of any corporation doing business in this state shall be discharged or voluntarily quit the service of such corporation, it shall be the duty of the superintendent or manager . . ., upon the written request of such employee . . ., to issue to such employee a letter . . ., setting forth the nature and character of the service rendered by such employee . . . and the duration thereof, and truly stating for what cause, if any, such employee has quit the service . . .

In June 1984 the Company (or its subsidiary, Delcon) answered most of these requests as follows:

> NATURE AND CHARACTER OF SERVICE: (craft stated)
>
> PERIOD OF LAST EMPLOYMENT: (dates given)
>
> REASON FOR DISCHARGE: Reduction of force. Employee was not granted access to the Protected Area of the Project through site Security Screening

Procedures. Work was not available outside of the Protected Area for this employee.

In these letters the Company itself terms the separation a discharge and implies that although there was no available work *outside* the protected area, work was available inside that area. If it had viewed the separation as only a layoff, no reply would have been necessary; had it nonetheless desired, out of caution or courtesy, to respond, it could have stated that the separation was a layoff and not a discharge.

3. Employees who failed the security screening were not eligible for rehire. Although initially the Company stated that they could not be referred by their Unions for six months, the Unions were soon thereafter told not to refer anyone who had not received security clearance. Obviously this bar on reemployment distinguishes the Grievants' separations from a layoff; a layoff does not prejudice an employee's opportunity for reemployment.

4. To a limited extent new employees were being hired at the very time that Grievants were separated. The following table shows the new hires immediately before and shortly after the April 12 separation of 50 Local 257 electrician-Grievants:

Requisition Number	Requisition Date	Number Hired	Date
#2850	April 9	9	Apr. 11
#2851	April 9	5	Apr. 11
#2850	April 9	1	Apr. 12
#2851	April 9	1	
#2851	April 9	2	Apr. 13
#2855	April 17	1	Apr. 18
#2856		2	Apr. 19
#2856*	April 23	1	Apr. 25
#2856	April 23	3	Apr. 26
#2855	April 23	2	Apr. 27
#2856	April 23	1	Apr. 27
#2855	April 23	1	Apr. 28
#2855	April 23	2	Apr. 30

* Requisitions 2855 and 2856 were cancelled on April 18 but reopened on April 23.

Even if (as the Company contends) the new hires occurring prior to April 12 should be disregarded, there were still 17 new hires following shortly after the layoff of the 50 electrician-Grievants. Data for other crafts appears in Appendix A.

The case of Local 2 Electrician Leander Bax is striking. By April 12 there were only two Local 2 employees on the job—both were assigned to maintenance of the temporary connection to external power. After Bax was terminated for lack of security clearance, he was in a day or so referred for employment in response to a requisition. He was turned around. Immediately thereafter, electrician Wyllen was referred by the Union and employed to do exactly what Bax had been doing.

5. After April 12 most, if not all, requisitions to the Unions specified that persons referred must have security clearance. When, notwithstanding this specification, employees who had been separated for lack of security clearance were referred for employment, they were turned around at the gate or, if hired, were dismissed when their lack of clearance was discovered.

6. At a meeting with Union representatives on April 19, the Company's Director of Labor Relations said it had "lost a lot of good men" for failing security clearance. (Union Ex. 94, p. 10).

7. Recent Supreme Court cases provide a guide to resolution of problems of employee separations where there is a mixture of causes. In *Mt. Healthy City Board of Education* v. *Doyle*, 429 US 274 and *Givhan* v. *Western Line Consolidated School District*, 439 US 410, the Court had before it discharges of public employees (school teachers) in which the employees claimed they had been discharged for communications falling within their constitutional right of free speech and the school authorities contended that the discharges were for misconduct unrelated to the communications. In *NLRB* v. *Transporta-*

tion Management Corp. 462 US 393 the court had before it a discharge in which the employee claimed he had been terminated for union activity and the employer asserted that the discharge was for misconduct. In the free speech cases, the Court held that:

> Once the employee has shown that is constitutionally protected conduct played a "substantial" role in the employer's decision . . . , the employer is entitled to show "by a preponderance of the evidence that it would have reached the same decision . . . even in the absence of the protected conduct."
>
> —*Givhan*, 439 US at 416 quoting from *Mt. Healthy*, 439 US at 287.

In the NLRB case the court held that the Board's *Wright Line* rule was a permissible application of Section 10(c) of the National Labor Relations Act. Under that rule, if the employee makes out a prima facie case that he has been discriminated against for union activity, the employer is entitled as an affirmative defense to show that the action was taken because of employee misconduct; however, the employer has the burden of persuasion as to the affirmative defense. In *Transportation Management*, the Supreme Court declined to follow the view of the First Circuit that the employer should not have the burden of persuasion on the affirmative defense and that to overcome a prima facie case the employer need only produce evidence to balance, not to outweigh, the Board's evidence. *NLRB* v. *Wright Line*, 662 F2d 899 at 905 (1st Cir., 1981). (The Supreme Court conceded that the view of the First Circuit could permissibly have been adopted by the NLRB).

I believe these cases are apposite. They involved questions of constitutional or legislative rights and policy; this case involves an alleged violation of contract rights. However, as in those cases, we have a question of mixed causation. Even if I were to follow the view of the First Circuit, I would conclude that the Company has

not produced evidence sufficient to balance the Union's evidence that Grievants were discharged, not laid off.

C. *Although Screening Was Required By Union Electric, That Did Not Relieve the Company of All Responsibility for It, Because the Company Had the Option (Subject to Union Electric Approval) to Use Its Own Psychological Test Procedures and Itself to Handle the Background Investigation.*

The Company asserts (its brief, p. 24):

> Ownership and control by Union Electric of Callaway Plant includes the exclusive authority to limit access to and from the facility to those who successfully complete its security screening procedure. Union Electric imposes its security screening requirement upon all its own employees, as well as the employees of its contractors pursuant to NRC regulations. The decision by the Owner to allow or deny access to the premises, pursuant to a procedure required by NRC regulations, to an employee of Daniel or one of its subcontractors is beyond the scope of the Project Agreement between Daniel and its subcontractors and the Unions. Consequently, such decisions granting or denying access to the Owner's property are not a proper subject for arbitration under the Project Agreement and are beyond the authority of the Arbitrator in this case. (p. 24).
>
> . . . the Arbitrator should refuse to consider the merits of the decisions on unescorted access because Daniel did not control that process. In this situation, security is the Owner's responsibility and the Arbitrator does not and should not have the authority to change those decisions. (p. 4).

The Company asserts, the Union does not question, and I find that:

> To obtain a license to operate the Callaway Plant, Union Electric had to submit a security plan;

One provision of the plan was that all persons having unescorted access would have to pass a screening procedure consisting of familiarization with onsite security devices; background investigation; and a psychological evaluation (or a "good-guy letter" in lieu of the latter two).

As owner and operator of the Plant, Union Electric had a contractual obligation to the NRC to deny unescorted access to any person who was not cleared; for non-compliance with the contract would put its license in jeopardy.

The Company could have required Union Electric to give unescorted access to any of its employees who had not been cleared.

Union Electric gave its contractors, including the Company, the option of using its array of screening procedures or (subject to Union Electric's approval) of using an alternate of the contractor's choice. Its Security Department Procedure dated October 21, 1983. (Co Ex 8; T. 81-2, 143, 230) says:

4.2.2 *Employees of Less than Three Years*

A psychological evaluation and background investigation that meet the requirements of ANS3.3, Security for Nuclear Power Plants are required for employees of less than three years. . . . The investigation shall cover at least the past three years and include employment references, verification of residence, personal references and review of criminal records where possible.

4.2.2.1 *Approved Contractor Screening Programs*

Contractors desiring to use their own screening program must submit a copy of their program to the Security Department for review and acceptability determination. The Security Department must be

informed of any changes in a contractor's approved screening program to ensure continued compliance with Union Electric requirements. A Screening Verification Letter (Attachment 1) shall be submitted for each employee screened in accordance with an approved contractor screening program. Copies of investigations and other supporting documentation shall be available for audit by Union Electric Company and the NRC.

4.2.2.2 *Union Electric Contractor Screening Program*

Those contractors who are unable to establish security screening programs of their own, (usually local contractor employing craft union labor), will be considered for participation in the Union Electric Contractor Screening Program. Contractors participating in this program shall comply with the standard procedures for employees with three years or more of uninterrupted employment; however, for employees of less than three years, special procedures shall be followed.

* * * *

The option extended not only to the psychological test, but also to the background investigation, so long as the procedures offered by the contractor met the requirements of ANSI 3.3 and were approved by Union Electric. (T230)

Thus the Company was not locked into the screening devised by Union Electric and offered to contractors by it, but instead could have devised and submitted for approval one of its own.

While the Company's adoption of the procedure offered by Union Electric assured the Company that the screening would be acceptable to Union Electric, it did not automatically discharge the Company's obligation to

the Unions under the Project Agreement. Under the Project Agreement it was the obligation of the Company (a) that any security rules established by it be "appropriate", and (b) not to discharge an employee, once hired, except for "cause".

In adopting Union Electric's contractor screening procedure rather than developing one of its own, the Company did so at the risk that the procedure might not meet these contractual obligations under the Project Agreement. Sponsorship of the contractor screening procedure by Union Electric was not proof that it would meet those obligations.

The foregoing renders inapplicable the Company's contention that the exclusion of Grievants resulted from a screening procedure which was under the control of Union Electric and for which the Company cannot be held responsible. Hence *Howard P. Foley Company* v. *IBEW, Local 639*, 31 BNA Construction Labor Report, No. 1522 (March 27, 1985) cited by the Company, is distinguishable. There a contractor employee was excluded by the project owner after its investigation indicated that he was somehow involved with narcotics. The holding of the case is that the arbitrator exceeded his authority in awarding back pay, because he could not have required reinstatement. In its discursive conclusions of law, the court said:

> Analogizing to the policy of immigration law enforcement that superseded the employer's culpability [for an unfair labor practice] in *Sure-Tan* v. *NLRB*, 81 L. Ed. 2d 732, 750 (1984), this case presents an instance in which the necessity of giving PG&E exclusive control over security at Diablo Canyon [nuclear plant] superseded any culpability on the part of Foley Company.

In the present case, Union Electric had apprised the Company of its willingness to permit the Company to

participate in its control over security to the extent of using a screening procedure of its own. Accordingly, the Company's responsibility was not "superseded" by Union Electric's control over security; the Company at the very least shared responsibility with Union Electric.

Also distinguishable because control lay in hands other than the employer's are several other security cases that I found in which relief was denied to a grievant: *M & M Restaurants*, 29 LA 202 (employee of cafeteria concessionaire at Naval Gun Factory had to turn in badge on demand of Naval Gun Factory officials; employer, after date of labor agreement, had signed concession agreement which gave Gun Factory right to exclude any employee lacking security clearance); *Wisconsin Telephone Co.*, 26 LA 792 (telephone repairman discharged for lack of security clearance where company serviced various defense installations); *Liquid Carbonic Corp.*, 22 LA 709 (employee lacking security clearance discharged; plant had numerous defense contracts).

The Union also asserts that *Foley* is in conflict with *W.R. Grace & Co.* v. *Rubber Workers*, 76 L. Ed. 2d 298 (1983). Whether or not that be so, *W.R. Grace* supports the conclusion I have reached. In *Grace*, during the term of collective bargaining agreement containing seniority provisions, the employer entered into a "conciliation agreement" with EEOC calling for employment of more women employees. When work fell off, the Company retained some women and laid off male employees who had more seniority. Had the men been retained, there would have been a violation of the conciliation agreement. The Court held that the Company was hoist by its own petard, having voluntarily incurred the obligation of the conciliation agreement and having chosen to shift the burden of economic loss from itself to the male employees. The case is analogous to the present one, where the Company voluntarily opted for Union Electric's

security screening procedure, when it could have proffered one of its own.

Most of the grievances arise out of denial of clearance for having failed the psychological test. As to this phase of the screening, the Company had the opportunity to propose another testing procedure and hence has responsibility if the procedure used was deficient.

As for the background investigation, the situation is somewhat different. I have to assume that an investigation procedure devised by the Company would have turned up at least the same adverse information about a particular employee as was disclosed by the employee's self-report and Equifax' investigation. Hence, the issue here is not whether the appropriate data was obtained, but whether the Company could have supplemented it or appropriately have evaluated it differently and granted rather than (as did Union Electric) denied clearance. This will be discussed in more detail later.

The matter of the physical security test is entirely different. Nowhere does it appear that Union Electric was willing to let a contractor conduct this portion of the screening procedure. This too will be discussed in more detail later.

D. *Company's Contractual Right to "Establish Appropriate Security, Safety, and Job Rules" Does Encompass a Security Screening Procedure, but the Procedure Must Be "Appropriate".*

The Company contends that utilization of the screening procedure was authorized by Article II, Section 4 of the Agreement, which recognizes that the Company has the right to "establish appropriate security, safety and job rules." The Unions counter with the following arguments:

That the screening procedures were established not by the Company, but by Union Electric;

That there is no provision in the Agreement to "bind the Unions to" Union Electric's security program or to NRC rules, and that, had that been the intention of the parties, the Agreement would have said so;

That the rules, even if authorized, can not be arbitrary, capricious or unreasonable, and any discharge resulting therefrom would have to meet the just cause standard.

I believe that the phrase "security . . . rules" does encompass establishment of a screening procedure for excluding employees who present a security risk. While the testimony of Danny Melloway, Business Representative IBEW Local 257, is that the subject of security screening never came up in the negotiations, that circumstance does not preclude giving the word "security" the meaning that it imports. Many labor agreements expressly reserve to the employer the right to establish reasonable "work", "shop", or "safety" rules. However, express reference to "security" rules is unusual. The Unions have not suggested what the term was intended to mean. Of course, it could apply requirements for identification badges, lunch box searches, entry through turnstiles, pat-down searches, etc. But in the context of a nuclear plant I see no reason to restrict it to such requirements. Since employment at a nuclear facility can readily be viewed as "sensitive" in terms of public safety, if not also in terms of national defense, it is reasonable to interpret "security . . . rules" as including screening of employees for personal history and characteristics associated with potential aberrant behavior.

I find no merit in the Union's contention that the screening procedure was established by Union Electric, and hence that it does not fall within the right of the *Company* to establish security rules. The contractor was negotiated with reference to construction by the Company of a nuclear plant for, and on a site owned by,

Union Electric. It was certainly within contemplation that Union Electric, as well as the Company, would have an interest in "security". Moreover, the parties were aware that the work was subject to inspection, and ultimate operation of the plant to regulation by the NRC. The pervasive presence of the NRC and the inherent danger of nuclear fuel, both of which were known to the parties, have to be borne in mind in interpreting the right of the "Company" to establish security rules. Accordingly I interpret the Company's right to "establish appropriate security . . . rules" as including effectuation by the Company of security requirements laid down by Union Electric. And, if any small doubt might attach to that interpretation, it is dissipated by the circumstance, discussed in detail elsewhere, that the Company was co-responsible with Union Electric for two of the three elements of the screening procedure since it rejected the option to proffer a procedure of its own and voluntarily elected to use the Union Electric contract contractor screening procedure.

It will be remembered that the Project Agreement reserves to the Company only the right to establish "*appropriate*" security rules. Hence, as contended by the Unions, the screening procedure cannot be arbitrary, capricious, or unreasonable, but has to be reasonable and suited to accomplishment of its purpose.

E. *The Company's Right to "Discharge for Cause" Is Not Limited to Terminations for Misconduct.*

1. *"Just" cause is implied*

Section 1 of Article II (Management Rights) of the Project Agreement states:

> The Employer retains full and exclusive authority for the management of its operations. Except as expressly limited by the terms of this Agreement the Employer retains the right to direct the work forces,

> including but not limited to the hiring of personnel, the selection of all supervisory employees, promotions, transfers, and discharges of employees for cause . . . .

Although the reference to "discharge for cause" is not phrased as a restriction on the employer's right to discharge, such a clause is commonly understood to mean, and the parties here construe it as meaning, that the Company shall not discharge employees except for cause. The contract does not say "proper" or "just" cause but the word "cause" is read as though it were so modified. Elkouri, How Arbitration Works (4th ed.) 652; see generally, *Words and Phrases*, "Cause".

2. *"Discharge" is not restricted to termination for misconduct*

The question arises whether the terminations in this case constituted "discharges".

The Union argues that the Company's right to discharge for "cause" must be restricted to cases of employee misconduct. In support it cites *Berry-Mahurin Construction Inc.*, 81-1 ARB ¶ 8216 (Sinicropi, 1981) and *Catalytic, Inc.* (Un. Ex. 109, Gamser, unpublished award, 1981).

In *Berry-Mahurin* the employer was a maintenance contractor whose contract with the nuclear utility expressly reserved to the utility the right to demand the exclusion of any worker from the plant site without any given reason. However, the employer's contract with the Union made no reference to the utility's reserved right, and declared that no employee could be discharged except for a just and sufficient cause. Under its contract with the utility, the employer had a choice of "documenting a background investigation for each employee" or of participating in the owner's screening program, which consisted of a questionnaire on background information

to be completed by the employee, followed by a polygraph examination. The two grievants, whose work had been satisfactory, were each found to have responded truthfully to the polygraph operator, but in doing so each disclosed three felony convictions. Arbitrator Sinicropi observed that both the employer and the union had constructive notice that the NRC regulations would affect their working relationship, but that the employer had the burden of bargaining for provisions to take account of possible NRC requirements since it knew of the utility's reservation of the right to exclude any employee. As to the meaning of "just cause", he wrote:

> Berry-Mahurin had the ability and the duty to inform the Union about the terms of the Iowa Electric contract. It did not do so. If it had, the parties could have and might have bargained for language in the collective bargaining agreement that might have accommodated the special situations such as the one under review in the instant case. Moreover, since Berry-Mahurin failed to do this, the Arbitrator must conclude that the traditional language in this collective bargaining agreement is confined to the meanings normally ascribed to labor agreements where there is an absence of any special circumstances . . .
>
> * * * *
>
> Clearly "just cause" relates to employee misconduct and usually is limited to employee behavior in a job-related situation unless external or off-the-job conduct affects employee performance, or reflects negatively on the Employer so as to damage his business posture. Just cause relates to the mores of the industrial community and it is predicated on a reasonable assessment of whether an employee breached those mores. Thus it is clear that the concept embraces violations of rules or regulations or otherwise includes employee conduct which constitutes errant

behavior warranting disciplinary treatment or discharge. In effect a just cause provision in the agreement limits the Employer's powers to define misconduct except for reasons of wrongful behavior.

In *Catalytic*, which also involved a nuclear generating plant, a boilermaker was terminated by a contractor three days after he was hired, because he failed to pass the utility's psychological screening test. The labor agreement with the contractor entitled the contractor to discharge employees "for proper cause". The labor agreement also declared that employees were required to observe "the Contractor's and/or Owner's rules and regulations not inconsistent with this Agreement". The arbitrator held that under the quoted clause a regulation of the owner would have to be consistent with the just cause clause, and held further that, notwithstanding the problem of excluding employees who are security risks, the failure to pass the utility's screening did not constitute just cause.

I respectfully disagree with conclusions of arbitrators Sinicropi and Gamser. Because of the predominance of discipline as an issue in arbitrations, the typical situation involving "just cause" is one in which there is a charge of misconduct. However, this does not connote that "just cause" is limited to employee misconduct. *Silas Mason Co.*, 59 LA 197 and 200 (emotional instability); *Wisconsin Telephone Co.*, 26 LA 792 (lack of security clearance); *Liquid Carbonic Corp.*, 22 LA 709 (same); *Burt Mfg. Co.* 21 LA 532 (same); *Weber Mfg. Co.*, 631 LA 56 (epilepsy); compare *LP Transportation*, 79 LA at 110 at 117 (physical or mental disease). The *Silas Mason* case is especially pertinent, because the plant manufactured explosives and the cause for termination was emotional instability.

It makes sense to me that use of the term "cause" in a contract means that the employer may not terminate an

employee without good reason, but that good reason need not be restricted to employee misconduct. In *LP Transportation*, Arbitrator Bernard Wray wrote:

> The prevailing view of labor arbitrators is that the employer has not only the right, but also the responsibility to take corrective action when any employee has a physical or mental disease or condition which endangers his own safety and that of others. . . I would add as a pertinent element to such test, whether or not the grievant might not also be endangering the general public if he continued to operate motorized equipment in his present physical condition. . .

In a similar vein, Arbitrator Kelliher wrote:

> This arbitrator has frequently held that management is responsible for providing a safe place to work. The employer has a legal duty to do so with consequent penalties provided for failure. Encompassed in this duty is the requirement that the employees who are reasonably found to be unsafe should not be continued in employment.
>
> —*Maremont Automotive Products, Inc.* 37 LA 175

IV. THE PSYCHOLOGICAL TEST

In view of my resolution of the preliminary issues, it is necessary to proceed to consider the reasonableness of the psychological test issues (and thereafter some other issues).

A. *Background and Development of the "Mini-IPAT" Test*

In 1978 Union Electric, anticipating that at some time in the future its employees at Callaway would have to be screened for unescorted access, looked into psycho-

logical screening and engaged the Institute for Personality and Ability Testing ("IPAT") to develop a testing procedure. Union Electric dealt with Samuel Krug, Ph.D.

Krug, who testified as an expert witness for the Company, until recently was Director of Test Services Division for IPAT and functioned as its executive director. He is a psychologist, licensed in Illinois and Arizona, who received his bachelor's degree in psychology from Holy Cross College, and his M.A. and Ph.D. (the latter in 1971) in psychology from the University of Illinois, where he was a teaching assistant in 1969 and a Visiting Professor in 1984. He is a "Fellow" of the American Psychological Association and of the Society for Personality Assessment. Krug was a student of Professor Raymond Cattell at the University of Illinois and worked with him on standardization of the 16 Personality Factor ("16PF") test and on Cattell's 16PF Handbook (1970). He is the author of about 55 "psychological tests, books, and articles" including a book, "Interpreting 16PF Profile Patterns". Krug stated that his expertise is particularly in test design and use. Although his schooling comprised most of the courses typically taken by a person pointing toward clinical practice, he did not have the one-year clinical residency required for such practice and his clinical experience has been fragmentary.

At the time it was approached by Union Electric, IPAT had done some screening of contractor personnel at other nuclear plants, on a limited basis. Union Electric asked IPAT to help design a program that would (a) satisfy the existing ANSI standards, (b) could be applied consistently over a long period of time, and (c) could operate at various levels of workers, from supervisors to construction people.

Krug undertook to develop such a program. His first consideration was to "use tests that were widely re-

searched, about which a great deal was known". The second was that the test battery be psychometrically sound and stand up under scrutiny. To this end Krug combined the following three tests published by IPAT:

16 Personality Factor test ("16PF"): This test, developed by Professor Cattell, is the product of his research since about 1950. His effort has been to identify personality "factors" which he describes as the "primary sources of traits of personality". Prior to 1970 the manual for the test was inadequate. In 1970 a Handbook was published which is considered to be an improvement but still evokes criticism for deficiencies. According to Krug, and other evidence, the 16PF is believed to be the second most widely used psychological assessment test, world-wide, and 2000 articles have been written concerning its use.

Clinical Analysis Questionnaire ("CAQ"): This was developed by Cattell and the IPAT staff and first issued in 1971. The current manual was written by Krug and published in 1980. The test is intended to measure "various aspects of depression and those dimensions of the "MMPI" (Minnesota Multiphasic Personality Inventory) pool of items which were not reliably measured by existing scales of the 16PF. (T. 433).

Motivation Analysis Test ("MAT"): Dr. Krug said that this test, which also is an IPAT product, "looks at motivational patterns; it attempts to measure the levels, amount of satisfaction people receive in various areas. It's important to us in this particular application where there is a total conflict score. The discrepancy between needs and satisfaction has been shown to reflect conflict, people want more than they're getting." (T. 438-9)

As originally developed, the "combined" test consisted of "Form A" (explained later) of 16PF; Parts 1 and 2 of CAQ; and all four subtests (or scales) of MAT. This involved some redundancy between 16PF and CAQ, be-

cause about half of the "items" in Part 1 of CAQ are identical to items found in 16 PF and another 10 per cent are substantially identical. Hence, about 1982 IPAT eliminated all of part 1 of CAQ, and also the two parts of MAT which had the highest reading levels and were more time-consuming than others. (T. 455-6)

The table in Appendix B shows the composition of the test originally developed for Union Electric by IPAT (Co. Exs. 36 and 37). (The test also included scales to detect "faking good" and "faking bad".) If (for want of information as to the actual weighting) I assume that all items within clusters 2 and 3 (Co. Ex. 37) were weighted equally with others in the same cluster, the weighting of the combined test would be:

"Cluster"	Cluster Weight	Weight of scales from 16PF/CAQ	CAQ	MAT
1. Affective and cognitive disorders	20%		20%	
2. Anxiety and adjustment	19%	12%		7%
3. Control	26%	13%		13%
4. Cognitive style	28%	28%		
5. Other scales	7%	7%		
TOTALS	100%	60%	20%	20%

(This probably gives excessive weight to the MAT scales in cluster 3, because the scales within clusters were weighted in the order shown on Co. Ex. 37, and the MAT scales were third and fourth of four scales in cluster B.)

For the testing of Union Electric employees, Krug recommended that persons "failing" the test be given an opportunity to appeal through review by "a mental health professional, either a clinical psychologist or a psychiatrist, who could be available to do whatever further test, interview or whatever procedure, that person felt appropriate." T. 497. His recommendation was adopted by Union Electric. Krug testified that the reason for his recommendation was that it "would make people feel

like they had recourse and would probably prevent some employee unrest . . . were not being treated mechanically", rather than because of any belief on his part that it would add a lot to the written test or appreciably reduce the error rate.

In 1981 Union Electric requested IPAT to develop a shorter battery that could be used "later on when they had to test large numbers of" contractor employees. This led to the development by Krug of the "mini-IPAT" which was a shortened version of the battery used with Union Electric employees and applicants. The shortening was accomplished by reducing the number of items from 667 (of which only 589 were "used" or scored) to 429 (of which only 375 were used) which was accomplished by eliminating part 1 of CAQ (128 items) and substituting 98 items from "LMAT" for 208 items of "MAT". (Union Ex. 79).

Krug could have recommended an appeal procedure for use with the shortened battery, but did not. T. 489. Krug testified:

> My responsibility . . . is to meet . . . the letter and spirit of the ANSI standards . . . Individual technicians are good at identifying which variables should be considered but they are not good at considering them. So the best use of a given amount of time is to use structured inventories . . . (T 490)

B. *Form, Administration, and Scoring of the Test*

Each person taking the test was given a booklet containing the test "items". The 16PF items called for a choice between three possible responses; other portions of the test called for a choice between two possible answers. Answers were recorded on a separate sheet which was to be marked. There was no time limit for completion of the test. Typically it took an employee three to four hours or more to complete the test. No assistance

was given to persons who had difficulty reading the test. Krug testified that the test was designed to be understood by persons with 7th grade reading ability (measured by the Fry method). Some persons were given the test immediately after finishing their shift.

The response sheet was sent to IPAT where it was scored by computer. Although it is not apparent from the face of the test booklet, the items are grouped into scales, but not in the sequence in which the items appear in the booklet. The computer is programmed to assign a value to each response, and to aggregate the item values for each scale as well as for the entire test. The computer produced a printout "profile" showing the total raw scores (possibly converted to 1 to 10) for each scale and in the aggregate for each test-taker. Those profiles were given to reviewers in small batches, each batch with a cover sheet. The batches were then reviewed by two IPAT staff persons, who had received orientation in evaluation of the test from Krug. Of the four reviewers, only one (who was not a clinical psychologist) had a Ph.D. and was licensed to practice; the other three had M.A.'s in psychology. The profile and the raw total score of the test taker were examined by a pair of reviewers who would independently decide whether the employee was or was not a high-risk person. If both reviewers concurred, their decision was final. If they disagreed, which seldom occurred, the score profile was discussed with Krug and he made the decision. The decision, without any detail, was then telephoned to Union Electric and later sent in writing.

C. *Criteria for Evaluation of Psychological Tests—"Reliability" and "Validity"*

The psychological profession has developed criteria and guidelines for the development, publication, and use of tests. The most important of these, for present purposes,

appear to fall into the categories of "reliability" and "validity".

For the purposes of this summary statement, and of the subsequent discussion, I shall sometimes refer to the pertinent principles stated in the "Standards for Educational and Psychological Testing" promulgated by the American Psychological Association in February 1985 (The "new" Standards). They constitute an up-dated elaboration of Standards issued by the Association in 1974, and were themselves preceded by several working drafts, of which the portions of a September 1982 and a February 1983 version dealing with reliability and validity were at my request furnished to me by the Company.

While the new Standards were not in effect at the time the testing involved in this case was done, they were in process of development at that time and hence I believe they represent the then and present thinking of the psychological profession.

In an effort to understand some of the statistical concepts referred to in the evidence, I have also had recourse to Anastasi, *Psychological Testing* (MacMillan, 5th Ed., 1982), a textbook of which portions are in evidence and which experts for both parties recognized as an authoritative work in the field, and also to the following elementary texts on statistics: Jerry Wiggins *Personality and Prediction* (Addison Wesley 1973, —cited by Dr. Krug); Guilford, *Fundamental Statistics in Psychology and Education* (McGraw-Hill, 1965—also cited by Dr. Krug); Lester Guest, *Beginning Statistics* (Crowell, 1958); Paul Blommers and E.F. Lingquist, *Elementary Statistical Methods in Psychology and Education* (Houghton Mifflin, 1960); Neil R. Ullman, *Elementary Statistics, an Applied Approach* (John Wiley & Sons, 1978); Jim C. Nunnally, Jr., *Introduction to Psychological Measurement* (McGraw-Hill, 1970). While for this purpose I have gone outside the record, I believe I am en-

titled to take "arbitral notice" of recognized statistical concepts and principles.

1. *Reliability*: A test must have reliability. Dr. Krug gave as the formal definition of reliability, "the ratio of true test variance to total test variance". (T. 611-12) The new Standards define reliability to mean "the degree to which test scores are consistent, dependable or repeatable, that is, the degree to which they are free from errors of measurement." As to the importance of reliability, Krug said:

> Statistically you can't have validity without reliability. Reliability is a limiting condition for validity. If the measuring instrument doesn't have consistency, how can it relate to consistency to any outside criterion, so it can't be valid. (T. 615)

There are several procedures for estimating reliability: among these are (a) test/retest and (b) internal consistency (T. 612 ff.). Anastasi (pp. 109 ff.) describes four procedures: (a) "test/retest", which means administering the identical test more than once to the same individual or group on a second occasion; (b) "alternate form", which on the second occasion utilizes a different version of the test designed to be equivalent; (c) "split-half" (which Anastasi says is sometimes referred to as "internal consistency"), in which from a single administration of the test the test-taker's responses on one-half of the test are compared with responses on the other half; and (d) Kuder-Richardson and "coefficient alpha", both of which from a single administration of the test analyze the consistency of the testtaker's responses to all *items*. (I infer that these fourth methods also result in a coefficient predicated on internal consistency).

2. *Validity*: The new standards state that validity is "the most important consideration in test evaluation". Dr. Krug defined "validity" as an index or a measure of the extent to which a test measures what it's supposed

to. (T. 615). The new Standards define validity as "the degree to which a certain inference from a test is appropriate or meaningful" (Glossary). The new Standards comment that it is "the inferences regarding specific uses of a test", and not the test itself, that are "validated". Thus in strict usage the term "validity" is not used in reference to a test in general, but rather to "the particular use for which the test is being considered". Anastasi, p. 131; see also new Standard 1.2 and 1.16.

Over the years the profession has developed several principal categories of "validation", of which the principal ones are:

(a) "*Constant validation*: This involves essentially "the systematic examination of the test content to determine whether it covers a representative sample of the behavior domain to be measured." Anastasi, p. 131. The concept is easy to grasp with reference to an examination in an academic field such algebra or even with reference to a bar examination.

(b) "*Construct validation*: Anastasi writes:

> The construct validity of a test is the extent to which the test may be said to measure a theoretical construct or trait. Examples of such constructs are intelligence, mechanical comprehension, verbal fluency, speed of walking, neuroticism, and anxiety.

The new Standards explain that construct-related evidence "focuses primarily on the test score as a measure of the psychological characteristic of interest":

> Establishing the validity of a measure of a construct is a problem distinct from that of using that measure in predicting a second measure, although the latter can often contribute to construct validation.

(c) *"Criterion-related validation"*: Anastasi writes (p. 137):

> Criterion-related validation procedures indicate the effectiveness of a test in predicting an individual's behavior in specified situations. For this purpose, performance on the test is checked against a criterior, i.e., a direct and independent measure of that which the test is designed to predict. Thus, for a mechanical aptitude test, the criterion might be subsequent job performance as a machinist; for a scholastic aptitude test, it might be college grades; and for a neuroticism test, it might be associates' ratings or other available information regarding the individual's behavior in various life situations.

The new Standards declare that, while the traditional categories of validation are convenient,

> . . . the use of the category labels does not imply that there are distinct types of validity or that a specific validation strategy is best for each specific inference or test use. Rigorous distinctions between the categories are not possible. Evidence identified usually with the criterion-related or content-related categories for example, is relevant also to the construct-related category.

However, the Standards go on to say:

> An ideal validation includes several types of evidence, which span all three of the traditional categories. Other things being equal, more sources of evidence are better than fewer. However, the quality of the evidence is of primary importance, and a single line of solid evidence is preferable to numerous lines of evidence of questionable quality.

As has been noted, the new Standards were not adopted until February 1985. The February 1983 working draft,

which was current at the time of testing in this case, said:

> A distinction should be made between validity of a test and the methods used to establish it. The validity of a test . . . always refers to the appropriateness of specific inferences or decisions made on the basis of the scores it generates. The methods used to establish this appropriateness can differ, depending on the nature of the question being asked, the context in which it is asked, and the extent of the prior information that is available.

These 1983 statements are not widely different from the explanation of validity in the 1984 Standards which say, in part:

> . . . The many types of validity questions can, for convenience, be reduced to two: (a) What can be inferred about what is being measured by the test? (b) What can be inferred about other behavior?
>
> The first question inquires into the intrinsic nature of the measurement itself . . .
>
> The second question inquires into the usefulness of the measurement as an indicator of some other variable as a predictor of behavior . . .
>
> These [criterion-related, content validity, and construct validity] can be discussed independently, but only for convenience. They are interrelated operationally and logically: only rarely is one of them alone important in a particular situation.

The new Standards also include guidelines for test use, and some of these will be mentioned in the course of the discussion. However, at this point it is pertinent to mention the guidelines concerning shortening, combination, and other modification of tests, and to their use in new situations.

Standard 3.17. If a short form of a test is prepared by reducing the number of items or organizing portions of a test into a separate form, empirical data or a theoretical rationale should be provided to estimate the reliability of each short form and its correlation with the standard form. (Primary)

Standard 6.2. When a test user makes a substantial change in test format, mode of administration, instructions, language, or content, the user should revalidate the use of the test for the changed conditions or have a rationale supporting the claim that additional validation is not necessary or feasible.

Standard 6.3. When a test is to be used for a purpose for which it has not been previously validated, or for which there is no supported claim for validity, the user is responsible for providing evidence of valid its (Primary)

Standard 6.7. Test users should verify periodically that changes in populations of test takers, objectives of the testing process, or changes in available techniques have not made their current procedures inappropriate. (Conditional—i.e., primary for some situations, secondary for others)

D. *RELIABILITY OF THE TEST*

1. *The Evidence*

a. *Evidence supporting reliability*

In support of the "reliability" of the test the Company relied primarily on the material set forth in Dr. Krug's 1981 article, "Development of a Formal Measurement Model for Security Screening in the Nuclear Power Plant Environment", published in Multivariate Experimental Clinical Research, Vol. 5(3) pp. 109-123. That article describes the extended version of the test, as used in screening Union Electric employees and job applicants;

obviously it antedated development of the shorter mini-IPAT battery.

The article first briefly describes the three component tests, 16PF, CAQ, and MAT. With reference to the 16PF, the article states, as did Dr. Krug in his testimony, that the test has been used for over a decade by the Federal Aviation Agency in screening applicants for positions as flight and tower controller to identify individuals with low potential for withstanding high stress environment; by the state of Pennsylvania for screening security guard applicants who would have to carry firearms; and throughout the world in a variety of clinical and industrial settings. The article states that "scale reliabilities range from .71 to .89 with a median of .83." As to the CAQ, the article states:

> The CAQ is a 28-scale instrument that measure the 16PF traits (Part I) along with 12 purely pathological personality traits (Part II). Seven of these 12 represent various manifestations of depression (Krug & Laughlin, 1977), and the last five represent major dimensions identified in factor analyses of the MPI item pool. Although Part I of the CAQ and Form A of the 16PF measure the same traits, the combined length of the two scales enhances the precision with which they are assessed within the Model. A validity scale built into the CAQ (Krug, 1979) is routinely used to check the accuracy of the CAQ protocol. The Manual (Krug, 1980) represents the primary source of information on the test. Reliabilities of the pathological scales range from .67 to .90 with a median of .84.

As to the MAT, the article states:

> The Motivation Analysis Test (MAT) measures 10 important comfort, social, and achievement needs. Five are basic drives—caution, sex, self-assertion, aggressiveness, and self-indulgence. Five are inter-

> ests that develop and mature through learning experience—career, affection, dependency, responsibility, and self-fulfillment. For each of the 10 interest areas, separate scores measure drive or need level, satisfaction level, degree of conflict, and total motivation strength. Although relatively few of the scales appear to bear an immediate and direct relationship to the primary criteria, the MAT has been found in many previous studies to be a very powerful predictor of job-relevant criteria. The Handbook (Cattell, Horn, Hadcliffe, & Sweney, 1961) and Individual Assessment Manual (Sweney, 1970) are the primary reference sources. Reliabilities of the individual scales range from .39 to .83 with a median of .68.

Of the 45 scales in MAT, only four were included in the battery, but the article states that one, the total conflict score, "effectively summarizes the entire protocol, since it measures the discrepancy between need level and satisfaction level across all interest areas."

With respect to the extended battery, the article reports that reliability calculated in accordance with an approach outlined by in Guilford, "1965, p. 463", and explains that it was derived from "intercorrelations of the individual components which were calculated from data on 272 power plant personnel" who had been screend for unescorted access. "Results indicate the Index has an estimated internal consistency reliability of .92," states the article. The article reports a standard error of measure of 7.9 raw score points, "roughly equivalent to 0.57 sten-score points," (sten-score is based on a scale of 1 to 10), and points out that the measurement error is "roughly equivalent to that associated with scores from our most carefully developed individual intelligence tests and significantly lower than that associated with many personality scales." For the mini-IPAT, Dr. Krug testified the reliability, similarly computed, would be .91.

On cross-examination, when asked about "test/retest reliability" of the battery, Dr. Krug testified:

> Q. . . . Let me just make sure the record is clear, that the reliability that you're talking about when you have referred to a .92 reliability for the extended version and .91 for the regular version has to do with internal consistency reliability?
>
> A. Yes, it has to do with that.
>
> Q. In fact, that's what you're measuring.
>
> A. Yes.
>
> Q. Do you have any data on the test/retest reliability?
>
> A. The method I used, the results and the overall estimation of the reliability reported in the manual is actually a hybrid. It takes advantage and make use of test/retest reliability of the individual components of the scale and uses a formula for putting together into an overall index, so what you're seeing is really a hybrid. (T. 621)

Two pages later he said:

> I said it's a hybrid— . . . the determination involves reliability estimates of the component scales and a method for combining those reliabilities. The component reliabilities I used are test/retest co-efficients. The method that puts them together may be better understood as an internal consistency measure. It's actually a hybrid.

Professional reviews of the 16PF introduced in evidence by the Unions include moderately favorable comment by one reviewer, Brian F. Bolton, Associate Professor, University of Arkansas (Eighth Mental Measurements Yearbook, Buros, Editor, 1978, pp. 1078ff):

> The traditional test/retest reliabilities for the 16 scales of Forms A and B average in the .70s, while

> reported stability coefficients for Form A over a four-year interval average in the high .40s. . . The parallel-form correlations (A with B and C with D) are generally lower than would be expected for scales purporting to measure the same source traits, averaging in the .40s. All told, however, these various coefficients are about par for personality inventories.

b. *Evidence detractive of reliability*

The foregoing evidence supportive of the reliability of the mini-IPAT has to be weighed in the light of the following evidence detractive of its reliability.

First I consider the evidence concerning the components of the battery.

Several reviewers of the *16PF* have commented adversely on its reliability.

> Anastasi: "Owing to the shortness of the scales, reliabilities of factor scores for any single form of the 16PF are generally low. Even when two forms are combined, parallel-form reliabilities center in the .50s and retests after a week or less often fall below .80." (p. 514)

> Bruce M. Bloxom, Associate Professor of Psychology, Vanderbilt University (8th Mental Measurements Yearbook, Vol. 1, pp. 1077-8: "Estimates of reliability for combined forms based on test/retest correlations are, with a few exceptions, satisfactory for Forms A plus B. With intervals of two to seven days, test/retest correlations in two samples range from .45 to .93 (median, .81), with scales B, L, M, N, and Q-1 having correlations less than .70 for forms C and D . . . scales M, N, and Q-2 [have] correlations less than .70. For forms A plus B the two-month test/retest correlations range from .63 to .88 (median, .78) with scale B having a correlation

less than .70 . . . These correlations indicate substandard reliabilities (less than .70) for those scales (B, M, N, and Q2) which also have content sampling problems. This further supports the recommendation that thsee four scales not be used."

James A. Walsh, Professor of Psychology, University of Montana: Yearbook, Vol. 1, p. 1083: ". . . it is impossible to recommend the 16PF in an unqualified manner for any use, from the most basic research to the most pragmatically oriented applications. The reasons for this statement are numerous . . . the reliability and the equivalence (interform) of the scales are variable but frequently too low for any of the multitudinous uses recommended by the authors. . ."

John S. Bair, Jr., Blooms State College, Journal of Personality Assessment, 181 1981, 45, 5, pp. 545-6: "Research on the reliability . . . has reported different findings . . . The observation that the reliability of a single form may not be satisfactory for some groups supports a precautionary attitude toward specific uses of the 16PF. Clinicians should use several forms in combination . . ." (Baird's own research involved test/retest of security guards after nine months, and he concedes that this long interval may have affected the difference between his scores and those reported by Cattell, where the interval was 4 to 7 days.)

Lee Cronbach, Essentials of Psychological Testing, Harper, 2d, ed., 19xx: Although this acknowledged authority reported that "the short scales have extremely low reliability (.45-.55)," it appears from the excerpt that this was probably written 20 or more years ago, well before the major support work for the 16PF had been published; hence I am disregarding it.

Dr. Krug stated as to the *CAQ* that prior to his Handbook, published in 1980, documentation of that test was limited. A 1978 reviewer in the Yearbook (my copy of the exhibit does not include the page with the reviewer's name) is very critical of the test and states that "the CAQ should be restricted to research." In the 1982 edition of her book, Anastasi writes (p. 515):

> Another addition to the series (of inventories by Cattell et al.) is the Clinical Analysis Questionnaire which includes a shtortened version of the 16PF . . ., reworded to fit clinical contexts; and 12 pathological scales . . . and other clinical scales (Cattell et al., 1970, Ch. 14; Krug, 1980). Other adaptations of the 16PF in special dress have been prepared for assessment purposes in such contexts as career development . . . all of these inventories are experimental instruments requiring further development, standardization, and validation.

Although the APA 1974 Standards characterize as "essential" the guideline that a test manual should state what period of time elapsed between tests (see also Anastasi, p. 109), the 16PF Handbook (albeit published in 1970) labels the correlation between two administrations of the same tests "when the lapse of time is insufficient for people themselves to change" as having been given "at short intervals". There is no evidence in the record as to the interval involved in the other two projects reported in the Manual. One of them, according to the Manual, involved the averages of 91 test/retest coefficients from 19 people taking the test daily each of 14 consecutive days. Another, involving 79 employment counselors and 67 undergraduates, appears to have a involved intervals of 4 to 7 days. See Baird, previously cited article. No exact time interval appears for the third project, involving 243 male and female Canadian high school students. Professor Gottesman, one of the Union's experts, and also Anastasi, p. 110-11, point out

that with short intervals the correlation between test and retest will be inflated because of the respondent's recollection of how he answered the first time. Daily repetition of the test for a fortnight probably compounds the inflation.

Professor Gottesman testified also that reliability of the 16PF was low because of the shortness of its scales —the evidence shows that there are 187 items in the test (of which only 157 were scored) comprising 13 scales, most of which consist of 12 items. Gottesman said that most personality tests have much longer scales, and that the test books "would like to have values in the neighborhood of .8".

I come now to the evidence adverse to the reliability of the mini-IPAT, taken as a whole.

The only reliability figure supplied by Dr. Krug was .91, which was derived from or related to the .92 reported in the article was the reliability of the extended version of the battery. Professor Gottesman stated that the reliability of the mini-IPAT had to be less than that of the extended battery, because the test had been shortened. Dr. Krug agreed, but computed the reduction as only .01 and furnished to Professor Gottesman and Professor Shulman (the other expert witness for the Unions—their credentials are summarized in Appendix C) an explanation of how he had made his computation; neither of them took issue with the method.

However, Professor Gottesman vigorously declared that to warrant use of either the extended or the mini battery, test/retest information should be proffered and that a test for which there is no test/retest reliability evidence should not be used, should be "banned".

Although in the article Dr. Krug had labeled the figure .92 as "an estimated internal consistency reliability", when asked about the apparent lack of test/retest infor-

mation he sought to characterize the .92 as a "hybrid". By this he apparently meant that the .92 comprised information both as to internal consistency and as to test/retest reliability, because, I infer, it was predicated on the test/retest coefficients of the component scales.

It is difficult for me to believe that Dr. Krug's "hybrid" is the equivalent of a test/retest coefficient. In his article he did not describe it as such and apparently there is a clear line of distinction between internal consistency and test/retest reliability. See Anastasi, pp. 109 ff; new Standards, no. 2.6. Further, the battery used a unique (and proprietary) weighting of the scales to arrive at a total score, and consequently test/retest information of the constituent scale scores might not be an adequate substitute for test/retest information concerning total scores.

2. *Discussion—reliability adequately demonstrated*

That test/retest information is important is reasonably clear. *However, neither in the standards or other authorities introduced in evidence, nor in Anastasi, do I find a statement that rest/retest information is indispensable.* While the 1974 APA standards (F. 6) declare it to be "Essential" that the test manual indicate to what extent scores are stable (i.e., how nearly constant they are likely to be if a parallel form is administered after time has elapsed)", the introductory discussion concerning "Reliability" states:

> One method . . . is by retesting with the identical test . . .
>
> If we want to eliminate memory as a systematic source of variance . . . we may use . . . parallel forms of the same test.
>
> If the effect of content sampling *alone* is sought without the effect of memory or response variability over time, or if it is not practical to administer two

> parallel forms with separate time limits, reliability can be estimated from a single administration of an unspeeded test. The test may be divided into two sets of items of equal, or approximately equal length . . . Then the correlation between the scores on the two parallel halves is a matched-half coefficient from which an estimate of the parallel forms reliability coefficient may be obtained . . .
>
> Estimates of reliability from a single administration may also be obtained by analysis-of-variance procedures . . .
>
> From the preceding discussion, it is clear that different methods of estimating reliability take account of different sources of error . . . Hence, "reliability coefficient" is a generic term. It can be based on various types of evidence; each type of evidence suggests a different meaning. It is essential that any method used to estimate reliability be clearly described.

Dr. Krug arrived at his .91 reliability coefficient by using the "approach" suggested by Guilford, Fundamental Statistics in Psychology and Education, p. 463 (McGraw-Hill, 1965). I infer that Dr. Krug based his calculations on reliability estimates of the component scales, whereas Guilford's formula calls for analysis of the correlation of test score with items. The .91 reliability for mini-IPAT was predicated on Dr. Krug's estimate of a .91 reliability for the extended battery and he gave to the Unions' expert witnesses a memorandum explaining in general fashion how he had calculated the latter the former from the latter. The Unions' expert witnesses did not take exception to the Guilford "approach" (except by characterizing the result as an internal consistency estimate) nor to the memorandum.

Of the several sources I have read, Guilford's 1965 book comes closest to explaining the significance of, re-

spectively, internal consistency and test/retest reliability. Guilford says (pp. 449-50):

> Psychological tests can be divided roughly into two classes: homogeneous and heterogeneous. The former are functionally uniform or, in the extreme case, factorially unique. They measure one factor, i.e., one ability or trait. Very few tests satisfy this definition completely. Some examples are vocabulary, numerical-operations, and perceptual-speed tests. The great majority of tests are factorially complex. Each one measures at the same time a number of different abilities or traits.
>
> We expect that homogeneous tests shall be internally consistent—we want all parts to measure the same thing, or things; consequently some form of internal-consistency index is called for . . .
>
> If a test is heterogeneous, in the sense that different parts measure different traits, we should not expect a very high index of internal consistency. An example of such a test is a biographical-data inventory . . .
>
> The only meaningful estimate of reliability for a heterogeneous test is of the retest variety. . . .
>
> It is clear from the discussion above that the internal consistency and the stability of the same test need not agree very closely. There can be very low internal consistency and yet substantial or high retest reliability. It is probably not true, however, that there can be high internal consistency and at the same time low retest reliability except after very long time intervals. High internal-consistency reliability is in itself assurance that we are dealing with a homogeneous test, at least within the broad meaning of the term stated above.

From Guilford's definition, I believe that the battery was a "heterogeneous" test. However, assuming the .91 reliability to be essentially of the internal consistency type, since it is high "it is probably not true," according to Guilford, that there could be low retest reliability (except after long intervals).

On the basis of all the foregoing, it is my conclusion, not without some misgivings, that the reliability of the mini-IPAT was adequately demonstrated.

E. *Validity of the Test and the Cutoff Score*

1. *The evidence, pro and con*

a. *Evidence about the test*

i. *Evidence supporting validity of the test*

According to Dr. Krug's 1981 article, the validity of the extended battery is demonstrated by the following considerations:

First: In Table 1 of the article, which describes and lists the 27 scales of the extended battery, Krug includes for 12 "PF/CAQ" scales and 2 "MAT" scales one or more of the following indications:

Groups scoring in the keyed direction
(given for 9 scales)

Groups scoring in opposite direction
(given for 14 of the scales)

Associated evidence
(given for 7 of the scales)

Following is an illustration of how this information is provided (16PF/CAQ Factor Q4):

Description: relaxed, infrustrated, tolerant, composed, secure patient

Groups scoring in the keyed direction: air industry personnel, counselors, teachers, FAA tower controllers

Associated evidence: lower absenteeism rate high scorers calm down quickly when upset, are not easily irritated by small things, and do not get upset quickly with people

Reliability: .84

The 16PF Handbook (Cattell et al., 1970) is given as the source of "most of the evidence".

Second: The article further says:

> . . . Table 2 attempts to assess the validity of the overall weighting scheme more directly. Here, we have calculated the congruence coefficient (defined as the sum of cross-products between two vectors divided by the square root of their respective sums of squares) between the weight vector and the vector of mean deviations on individual trait components for 23 clinical groups. Since profiles were not available for the complete set of 27 variables we use in the Model, coefficients were calculated on the basis of either 13 (source = 16PF) or 23 (source = CAQ) elements of correspondence. Significance levels associated with these coefficients take this into account.
>
> A careful review of Table 2 shows that the weighing vector performs as it should, yielding a significant and generally high negative relationship with the scoring pattern of 23 important diagnostic groups. The correspondence with crimial and antisocial types is particularly gratifying.

Table 2 of the article is reproduced in Appendix D.

Third: The article then furnishes the following further evidence:

Taking still another approach to direct estimation of the validity of the model, a sample of 100 individually diagnosed psychiatric cases was randomly drawn from an available pool of 950 CAQ protocols that had been gathered as part of the national standardization of the test. By itself, the CAQ measures 23 of the variables used in the Screening Model, and these 23 account for most of the variance in Screening Index scores. However, the normal traits (A through Q4) are not measured with the same degree of precision we achieve by combining scores from 16PF, Form A, and CAQ, Part I.

All were hospitalized or receiving outpatient therapy for some diagnosed psychiatric disturbance at the time of testing. In terms of primary diagnosis, the composition of the clinical sample was as follows: schizophrenia, 17%; personality disorder, 15%; neurosis, 12%; drug dependence, 8%; alcoholism, 28%; other, 22%.

At the same time, 50 convicts were sampled from a pool of 446 protocols similarly gathered during the standardization of the CAQ. The quite reasonable assumption was made that these two groups clearly represented the type of individual the Screening Index should be identifying. Consequently, their Screening Index scores, and the scores of 100 "normal" adults randomly sampled from the CAQ standardization sample, were correlated with the binary criterion "reject/normal." The resulting validity coefficient was found to be .36, which is significant beyond conventional statistical levels and about typical in size to validity coefficients found in industrial selection work.

ii. *Evidence detractive of validity*

The Union's expert witnesses contended, on the following grounds, that the evidence in support of validity of the test battery was grossly insufficient.

First: Both Professor Gottesman and Professor Shulman testified that there are no validity studies for the battery as a whole.

Apart from Krug's 1981 article (which they seemed not to regard as the requisite kind of validity study), no studies were found either through a computer search or inquiry of IPAT. Gottesman testified that a study of validity should be conducted with reference to the whole test battery, not merely its components. (T 1404). Moreover, citing the 1974 Standards, he testified, when the shortened version of the battery was developed, there should have been a new validation procedure. I infer that one reason why he believes a fresh validation procedure to be requisite is that the number of items per scale in the CAQ were, in his opinion, already insufficient. (T 1402).

Second: Gottesman and Shulman assert that the .36 validity coefficient claimed in Krug's 1981 article is virtually without any significance, because:

(1) It applies only to the CAQ (Parts I and II) and not to the whole battery. (T 1415)

(2) It was developed from results of tests given to a highly pre-selected population: i.e., known criminals and known cases of psychiatric patients. To test such individuals to screen out the emotionally unstable is like "shooting ducks in a barrel" (T 1418). A study should not be confined to an extreme group: "the most reliable statistics are obtained if all cases are used; validity coefficients derived from extreme groups may be misleading" (T 1422, quoting from 1974 Standards).

(3) Since the predictive value of any given coefficient is determined by squaring it, a validity coefficient of .36 has a predictive value of only .1296 (T 1397). (The significance of these figures is discussed below.) The results to be expected from use of such a screening

device would be little better than from random choice. (T. 1773-4).

b. *Evidence as to the 190 Cutoff Score*

(i) *Company's Evidence in Support*

Assuming that a test has adequate reliability and validity to furnish a meaningful measurement or evaluation of a personality trait, and that the test is to be used as the sole screening device, the problem remains of determining the cutoff score to be used in discriminating between the desirables and the undesirables. Making, or evaluating, that determination involves a procedure somewhat related to, but nonetheless distinct from, that of developing the test itself.

In his 1981 article, Krug wrote:

> At the present time we have no exact suggestions for cutoff scores. In our own practice the Screening Index is not automatically applied in the decision-making process. Complete test protocols, along with biographical, historical, and other psychometric data, and the Index are individually and independently reviewed by two psychologists who must then concur on a decision. With respect to the unescorted access decision, the independent judgments are in agreement nearly 100% of the time.
>
> There are no objective guides to determine what rejection rate is most appropriate. Studies on the incidence of psychiatric disorder exist, and the results are alarming. Essen-Moller (1956) found "evident" or "probable" psychiatric abnormality in 21% of unselected, presumably "normal" adult males and 32% of adult females. Srole et al. (1962) found evidence of psychiatric impairment, ranging from moderate interference in life adjustment to total incapacitation in 23% of nonhospitalized New York

> adults. Leighton et al. (1963) rated 32% of a rural population as significantly impaired, where impairment was defined as "inadequacy in life situations by reason of the psychiatric symptoms." U.S. census data for the period 1971-1978 reveal that 16.6% of the civilian noninstitutional population (25 to 74 years old) reports having had a nervous breakdown or felt near a nervous breakdown. During 1971, the admission rate to psychiatric facilities for the working-aged population approximated 1.7%.
>
> These data, and the costs associated with a false negative decision in the nuclear power industry suggest that a relatively high rejection rate may be reasonably easy to justify. In our own assessment work we have rejected approximately 1 in 10 being considered for unescorted access. This may seem a little low in terms of the findings reported above. However, many of those we have screened have had a long, successful career within the power industry. The population with which we work cannot be considered an unselected adult population.

Furthermore, in his testimony Krug cited a recent National Institute of Mental Health study conducted in the St. Louis area which, he said, "shows the incidence of psychiatric disability in a normal population for the St. Louis area, excluding alcoholism and drug abuse, is 12.6 per cent."

Notwithstanding the statement made in the first paragraph of the quotation, when IPAT administered the mini battery to the Company's employees it applied a cutoff score of 190 except in rare instances. As previously described, the score printout was reviewed by two IPAT staff members (only one of four was a psychologist); if the score was below 190 and if the two of them agreed upon rejection, the employee was rejected for unescorted access; there were very few instances in

which the reviewers either decided to "pass" a person who scored under 190 or disagreed with each other. Krug testified that, although the pass/reject procedure had previously been more flexible, his experience with the battery had led him to believe that, for all but a handful of cases, a fixed cutoff score produced as good a result as if there were personal intervention. He said, moreover, that, although certain background information on each employee was available to the reviewers (from the biographical data sheet Co. Ex 26), he thought the information was not useful and said that the reviewers did not avail themselves of it.

In the 1981 article, Krug illustrated the results which would flow from use of various several different cutoff scores on the following populations:

			Power	Plant	Cases
Cutoff Under	Psychiatric Cases	Prison Cases	Rejected for Unescorted Access	Passed for Unescorted Access	Unselected Normal Cases
180	54.7	49.6	21.4	0.0	26.0
190	65.7	59.2	35.7	0.4	32.0
200	72.5	68.6	64.3	2.5	43.0
210	80.3	77.1	75.0	8.2	56.0
220	86.3	83.4	96.4	15.6	62.0
230	90.0	89.9	100.0	26.6	71.0
Mean	175.7	180.5	194.7	245.3	204.1
Stand Dev	38.4	37.3	21.1	23.8	37.8
No. cases	950	446	28	244	100

ii. *Unions' attack on cutoff score*

Use of a fixed cutoff score, and in particular the 190 score, was vigorously attacked by the Unions' experts.

In the first place, Professor Gottesman took issue with the figures which Krug derived from the demographic studies he cited. Gottesman contends:

> Essen-Moller: This thorough and unique study, conducted with the help of the Swedish Government, catalogues every instace of mental illness, past or pres-

ent, experienced by all members of the population, inclusive of both sexes and all ages, in a defined area in Sweden. The percentage of persons with mental illness includes retarded and senile individuals, as well as those who are or have been in institutions; and thus includes many persons who would never appear on employment rolls or have a history as construction workers. After various statistical adjustments, Gottesman estimated that, predicated on Essen-Moller, the base rate for emotionally unstable persons among Daniel employees should be between 3.8% and 6% (T. 1621.2). Krug, when testifying in rebuttal, said that 10 per cent would be appropriate. (T. 2007 ff)

Srole: "New York" in this study refers to mid-town Manhattan, whose population is not average. The study "used such a wide definition of impairment that not many of us would take it seriously." (T 1480).

Leighton: The definition of impairment, inadequacy in life situations by reason of psychiatric symptoms", is too broad; furthermore, it comprises not only symptoms at the time of the study but at any time during the individual's life. (T. 1481)

NIMH St. Louis study: The St. Louis study is one of several being conducted throughout the country. By design, of the 3000 individuals studied, 40 per cent are black; 60 per cent are female; and 20 per cent are over 65. Because of these distortions, the study furnishes no guidance for this case.

Second: The Unions' experts testified to the mental illness rate in other populations.

(a) Gottesman testified that, of some 18,000,000 men called up in the World War II draft, the percentage of men rejected for emotional psychological/psychiatric problems was 5.4, with an additional 4 per cent rejected

for education or retardation problems. A figure of 5% is given by Jerry Wiggins, *Personality and Prediction*, p. 250, a work which was cited by Krug for its "decision theory" formula (see below).

(b) Gottesman testified, on the basis of information variously but reliably obtained, concerning tests of employees at several utilities, including Union Electric, that where persons who would have been "screened out" on the basis of only a written test subsequently given an interview by a psychologist, the percentage of those ultimately denied unescorted access was as follows:

	Total tested	Failed written; no interview	Screened out after interview	Percent of total finally
Northern States Power	860	15	70	9.88%
Baltimore G & E	7,409		132	1.78%
Utilities serviced by Behaviordyne	18,907	496	191	3.63%
Union Electric	2,061	78	7	4.12%

I note, at this point, that whereas out of the grand total of 2,081 Union Electric employees and job applicants tested by IPAT, only 4.12% were finally rejected, Krug, in his 1981 article, reporting on a Union Electric "population" of 272 stated that in practice one of 10 employees were rejected. His Table 3 (supra), with percentages converted to numbers shows that the distribution of scores among the 28 rejected was as follows:

Less than 180	6
180-189	4
190-199	8
200-209	3
210-219	6
220-229	1

In other words, with a cutoff score of 190, only 10 of the 272 (or 3.68%) would have been screened out.

Third: Gottesman stated that Daniel's construction worker employees were clearly a "selected" rather than an unselected population, and that the base rate of mental illness among them could be expected to be substantially lower than in an unselected population, because the Daniel employees had "made it" in a difficult occupation which, because of periodic unemployment, is stressful.

Fourth: Shulman testified that there was not one chance in 10,000 that Daniel's employees were "from the same population" as the 272 Union Electric employees for whom test data are set forth in Krug's 1981 article. Shulman testified that the mean (average) test score for the 272 Union Electric employees was 240, whereas for the Daniel employees who took the test (without considering the 998 employees who had "good guy" letters) the mean was 222.655; if the 998 employees with good guy letters were to be assigned an average test score of 240, the mean for all the Daniel employees would be 227.657. (T. 2125). When Dr. Krug was questioned by the arbitrator with reference to these figures, the following colloquy took place:

> The Arbitrator: Does that indicate that if there were discrimination, and there was that evidence—if that evidence meant that there was discrimination, would it indicate that there should be a change in the cut off score?
>
> Dr. Krug: The evidence means there that, just as a section was read there, you may end up having to use entirely different weighting procedure. You may change—in other words, you may have to change the model completely . . . You may have to drop out certain types of items or put in new items, reading comprehension levels, all sorts of things to take it out . . . It wouldn't just be the cutoff.
>
> The Arbitrator: Does it indicate a need for substantial or just for—

Dr. Krug: I don't have enough information to answer that.

(T 2138-9)

Sixth: Professor Shulman testified to the following conclusions based on the "Taylor-Russel" tables (Un. Ex. 102):

> Assuming that the actual percentage of emotionally unstable persons among the 2462 Company employees who took the psychological test was 5 per cent; that the test had a validity coefficient of .36; and that 12.7% of those tested were found to be screened out as being emotionally unstable, then:
>
> Of the 312 (12.7%) screened out, only 41 (1.65%) were actually unstable (true positives) and 272 (11.05%) were incorrectly identified as a unstable (false positives).
>
> Of the 2149 (87.3%) who passed the screening, 2067 (83.95%) were actually stable (true negatives) and 82 (3.35%) were incorrectly identified as stable (false negatives).

In rebuttal, Dr. King testified that, on the basis of the same assumptions but using the formula appearing in Jerry S. Wiggins, *Personality and Prediction*, p. 247 (Union Ex. 106):

> Of the 312 (12.7%) screened out, 79 (3.24%) were actually unstable (true positives) and 233 were incorrectly identified as unstable (false positives);
>
> Of the 2149 (87.3%) who passed the screening, 2106 (85.54%) were actually stable (true negatives) and 43 (1.76%) were incorrectly identified as stable (false negatives).

(Note: The percenages were given in the testimony; I have supplied the corresponding numbers of individuals.)

It appears to me that the information provided by application of these formula is highly significant. Taylor and Russell prefaced the article (23 Journal of Applied Psychology, 565, Oct. 1939) in which they presented the tables by saying:

> It has often been pointed out that the magnitude of the correlation coefficient as such is not an adequate representation of the magnitude of the relationship between the two variables which are under consideration.
>
> —Union Ex. 102

Similarly, Wiggins wrote:

> Although the classical validity coefficient . . . is obviously a useful index, there are many ways in which it falls short of telling the whole story of predictive success. From a practical point of view, the number of correct decisions made by a psychological test or assessment procedure is a more important piece of information then the degree of association which exists between predicted and obtained criterion scores.
>
> —Union Ex. 106 at pp. 240-1

Both Taylor-Russell and Wiggins require that three variables be fed into the computation in order to arrive at a figure representing the percentage, of the total number of persons tested, who are correctly identified as "true positives" by the testing procedure; these variables are:

> The validity coefficient;
>
> The percentage, of persons, in the group tested, who are assumed to be positives (base rate);
>
> The percentage of persons tested who are to be selected through the screening procedure (selection ratio).

I am unable to understand why the Taylor-Russell and Wiggins formulations produce substantially different results: the problem would seem to me to be one of relatively unsophisticated mathematics. (Dr. Krug suggested that Professor Shulman might have been reading the Taylor-Russell tables incorrectly; Shulman rechecked his figures and said he was reading the tables correctly; and so it appears to me after study of the Taylor-Russell article.)

I am unable, on the present record, to determine which of the formulations is correct, or even more nearly correct. The Company urges that Taylor-Russell tables be disregarded, because they date from 1939 whereas Wiggins' book was published in 1973, and because Anastasi (p. 163) refers to Taylor-Russell as "a precursor of decision theory in psychological testing", assertedly implying that the Taylor-Russell tables have been superseded. However, if one reads pp. 163-165 of Anastasi (5th edition, 1982) it becomes plain that she regards the Taylor-Russell tables as continuing to be appropriate for their intended use, and, in fact, draws upon them for illustrations; and that "decision theory", of which she says the tables were a precursor, is a much broader concept, as is made plain by the following excerpt (Anastasi at p. 168):

> THE ROLE OF VALUES IN DECISION THEORY. It is characteristic of decision theory that tests are evaluated in terms of their effectiveness in a particular situation. Such evaluation takes into account not only the validity of the test in predicting a particular criterion but also a number of other parameters, including base rate and selection ratio. Another important parameter is the relative utility of expected outcomes, the judged favorableness or unfavorableness of each outcome. The lack of adequate systems for assigning values to outcomes in terms of a uniform uitlity scale has been one of the chief

obstacles to the application of decision theory. In industrial decisions, a dollar value can frequently be assigned to different outcomes. Even in such cases, however, certain outcomes pertaining to goodwill, public relations, and employee morale are difficult to assess in monetary terms. Educational decisions must take into account institutional goals, social values, and other relatively intangible factors. Individual decisions, as in counseling, must consider the individual's preferences and value system. . . .

2. *Discusison—Validity of test with 190 cutoff not demonstrated*

I come now to resolution, for the purposes of this case, whether the mini-IPAT has a validity such as to make it, when used as the sole device without the aid of other tests or interviews, an appropriate screening instrument.

In my opinion, the mini-IPAT battery, particularly as used in this case(i.e., with a substantially inflexible 190 cutoff score and as virtually the sole predictor), does not have sufficient validity to constitute an appropriate screening device.

a. I take into account the evidence appearing in Tables 1 and 2 of Krug's 1981 article (see supra, "First" and "Second" in my summary of the evidence in support of the test's validity.) However, it appears to me that those tables show only that the (extended) battery comprises scales which individually measure distinct personality facets which are probably relevant to a determination of emotional stability/instability. As I read this material, it does not furnish a method of "drawing a bead" on the validity coefficient of the battery.

b. It appears to me that, as contended by the Unions' experts, the evidence concerning hypothetical application of the battery (in fact, only CAQ, parts I and II) to

groups of known criminals and known psychiatric patients does not substantiate the validity of the test, but rather raises serious questions as to the validity.

According to Krug's table 3, with a 190 cutoff, 226 (34.3%) of the 950 *actual* psychiatric cases would have been deemed normal, and even with a 210 cutoff, 187 (19.7%) of the 950 would have been deemed normal. Similarly, with a 190 cutoff, 182 (40.8%) of the 446 convicts would have been deemed normal, and even with a 210 cutoff, 98 (22%) of the convicts would have been deemed normal. In comparison, with a 190 cutoff 312 (12.67%) of the 2462. Company's employees who took the test were screened out, and if IPAT had used a cutoff of 210 some 615 (about 25%) would have been screened out. See Co. Ex. 37 H(3). It is little help to know that the mean score for the 950 psychiatric cases was 175.7, and for the 446 prison cases was 180.5 as compared with 204.1 for the 100 "unselected normal cases", for in our situation a decision to pass or reject an individual was made on the basis of his *individual* score. These figures scarcely invite confidence in the ability of the test to discriminate between emotionally stable and unstable individuals.

c. The reported validity coefficient of .36 does not persuade me that the test has reasonable validity, because

(i) It is predicated on less than all of the scales in the mini-IPAT and on longer versions of those scales than those in the mini-IPAT.

(ii) It was uncontradicted that, in general, the significance of a correlational coefficient is to be judged by its square (e.g., .36 squared yields 0.1296).

d. On the base of the evidence summarized above, I believe that the base rate of emotional instability in the population of the Company's employees should have been considered to be appreciably less than the percentage of Daniel employees screened out (12.7% of those

tested, 9.0% if the 998 with "good guy" letters are included.) The 9.88% screened out at Northern States Power is perplexingly higher than the percentages screened out in the other groups tabulated above from Union Exhibit 88. However, as appears from the letter written to Professor Gottesman by Personnel Decisions, Inc. (Un. Ex. 89), that organization did not perform psychological testing on all Northern States Power personnel; the utility's in-house screening services determined which personnel would be sent to the outside testimony groups. Since Northern States Power itself seemingly cleared some employees itself, the actual population may have been larger than the 860 tested by Personnel Decisions.

e. At the hearing Professor Shulman used a base rate of .05 to demonstrate (using the Taylor-Russell tables) the expectable accuracy of predictions, assuming that 12.7% (the percentage of the 2462 persons tested who failed the psychological test) were denied clearance because of the adverse test result. His figures were, on cross-examination, supplemented by computations based on the Wiggins formula. (The relevant Taylor-Russell table and the Wiggins formula are copied in Appendix E.) The testimony shows (see Union Ex. 101), that, assuming a .36 validity coefficient and the denial of clearance to 312 out of 2462 test takers:

Failed test	Per Taylor-Russell	Per Wiggins
True positive (actually unstable)	1.65% (41)	3.24% (80)
False positive (actually stable)	11.05% (272)	9.46% (233)
Passed test		
True negative (actually stable)	83.59% (2067)	85.54% (2106)
False negative (actually unstable)	3.35% (82)	1.76% (43)
"Hit rate"	85.5% (2105)	88.78% (2186)
Error rate	14.5% (357)	11.22% (276)

Using random selection, the figures would be (Un. Ex. 101):

True positive	0.63% (16)
False positive	12.07% (296)
True negative	82.39% (2042)
False negative	4.37% (108)
Hit rate	83.56%
Error rate	16.44%

Hence, the incremental predictive utility of the test over random selection is not substantial, whether it be judged by the proportion of true positives (those properly classified as unstable) or by the "hit rate" or "error rate". Furthermore, in absolute numbers even using the Wiggins formula at least 233 of the 312 "fails" would have to be considered actually stable instead of unstable; and, similarly, 43 (per Wiggins) employees given clearance would actually be unstable.

For another evaluation, instead of using the .05 base rate used in the above computations taken from Union Ex. 101, I shall assume a base rate of .10. This would mean that expectably one in ten of the construction workers was emotionally unstable; the .10 base rate is identical to that mentioned by Krug in his 1981 article as being appropriate for utility employees. If we look at all the construction workers to whom the security screening was applicable, we have a total of 3460, of whom 998 received good guy letters and 2462 were required to be screened through tests. Expectably, one in ten, or 346, of these employees would be emotionally unstable; since this number would include some "good guys", I will assume that, just as with the 2061 Union Electric employees and applicants who were screened (Un. Ex. 24), 4.6% of the "good guys" would have failed the test. Hence, I will assume that 359 employees would have failed the psychological test—the 312 who actually failed, plus 46 good guys. Accordingly, the purposes of the

evaluation, the "selection rate" will be 358/3460, or .103. Following are the results:

	Per Taylor-Russell	Per Wiggins
True positives	2.45% (85)	4.3% (149)
False positives	7.55% (261)	6.0% (208)
True negatives	82.15% (2842)	84% (2906)
False negative	7.85% (272)	5.7% (197)
"Hit rate"	84.60% (2927)	88.3% (3055)
Error rate	15.40% (533)	11.7% (405)

It will be noted that, even with this higher base rate, well over half of the employees screened out would be false positives—i.e., emotionally stable, notwithstanding that they failed the test. Furthermore, a goodly number of employees (272 per Taylor-Russell, 197 per Wiggins) who passed the test would, in fact, have been unstable.

f. Dr. Krug himself testified, as I have previously stated, that, since the mean score of the 272 Union Electric employees/applicants in the sample rejected in the 1981 article was 240 and the mean score of the Company's employees was 223 (or 228, assuming that the good guys averaged 200), "you may have to change the model completely."

F. *Should the Screening Procedure Have Included Provision for a Clinical Interview?*

1. *The evidence, pro and con*

Another ground on which the Unions contend that the screening procedure was unreasonable, is that it did not make any provision for the test-taker to be interviewed by a psychologist and psychiatrist. The Company contends that without any professional interviews the test battery and cut-off scoring constituted a reasonable procedure.

a. *Evidence Supportive of Test Without Any Interview*

Dr. Sheldon Freud, an expert who testified for the Company, (for his qualifications, see Appendix C) expressed the opinion that an interview would be of little or no value, because it would inevitably result in a subjective conclusion by the interviewing professional. It is more equitable, he said, to base decisions solely on the test scores, because the determinations by even a single professional interviewer, let alone decisions by several different interviewers, would not be based on any uniform standard. To achieve some uniformity, the interview would have to be a structured one; and a structured interview is little different from a written test. He opposed use of an interview only for persons who failed the written test:

> The interview won't help you decide . . . You'll just feel sorry for him. And if you're doing a good job, feeling sorry for him should have no bearing on your decision. Then he tells you he has a wife and a disturbed child or a crippled child, and pretty soon your're getting involved in things that have no bearing on your selection scores.

Dr. Krug was less critical of interviews conceded that many professionals believe that screening should be comprised of both a written test and an interview. A properly conducted interview, he believes, has validity, and could improve the validity of the screening but would not "add a lot", although it might serve to reduce the number of false positives (persons screened out as risks who in fact are not risks). (T.496,648, 652) If the assessment procedure were not "sufficiently reliable" an interview would be appropriate as a matter of "incremental validity" (T650-51). If only the MMPI were used as the test instrument, an interview would be appropriate, because that test is designed to discover pathological conditions and does not extend to personality traits

indicative of emotional instability. However, the IPAT test has comprehensive and balanced scales and can appropriately be used without an interview. At one point, he testified that interviews would not be "cost effective" and then said that construction of the test procedure without provision for interviews had been a "cost judgment".

Dr. Krug especially pointed to the introduction to Part 10, Employment Testing, of the new APA Standards, which says:

> Competent test use can make significant and demonstrable contributions to productivity and to fair treatment of individuals in employment settings. Among available alternatives, tests are the most valid and the least discriminatory personnel decision aids available.

I note with some perplexity that nowhere in either the old or the new APA Standards, nor in the APA Ethical Standards, is there any direct mention, recommendation, requirement or comment concerning the use of interviews in conjunction with written tests. Moreover, while the Unions have been greatly concerned over the assertedly insufficient evidence of reliability and validity of the IPAT battery, I infer that are few if any statistics, and probably no feasible way of developing any statistics, concerning the reliability and validity of a clinical interview.

Dr. Krug testified that various studies, of which the first one was by Meehl, have shown that evaluation of written tests by statistical prediction is superior to judgmental evaluation of those tests by clinicians. The same view is expressed by Professor Anastasi in *Psychological Testing* (5th ed., 1982) at pp. 490-1:

> Given the same set of facts, such as test scores or life-history data, will clinical judgment provide more accurate predictions of subsequent behavior than

> would be obtained by the routine application of a regressive equation or other empirically derived formula? . . . In a book entitled *Clinical Versus Statistical Prediction*, Meehl (1954) . . . showed that, with only one questionable exception, the routine application of statistical procedures yielded at least as many correct predictions as did clinical analysis and frequently more.
>
> The publication of Meehl's book was also followed by further research using better controlled procedures and more clinically relevant criteria . . . A later review of available research led Meehl (1965) to reaffirm his earlier conclusions . . . In a particularly well-designed study, Goldberg (1965) compared clinicians' predictions from the score profile on the Minnesota Multiphasic Personality Inventory . . . with predictions made from a series of statistical formulas. Comparisons of validity coefficients showed that the statistical formulas clearly outperformed the clinicians.

The foregoing has to be understood in context, however, for Anastasi makes it clear that those comments pertain only to one aspect of the clinician's role—that of data synthesis. Earlier (p. 489) Anastasi had pointed out that the diagnostician's role has two aspects—data gathering and data synthesis. A little later I shall mention what she has to say about the clinician's data gathering, and his combination of written test results with the data he gathers.

Dr. Krug stated that, if interviews were to be used at all, they should be given to everyone. In this connection, the Company makes the point that, if a procedure is provided for appeal to an outsider, the decision concerning security of the nuclear facility is removed from the hands of the licensee; in support of this point, the Company calls attention to the vociferous objections on

the score expressed by licenses in comments concerning the portion of the NRC 1984 Proposed Rule relating to review of adverse screening decisions.

The Company also urges that although, in comments to the NRC, numerous writers favored interviewing only those who failed the written test or who had marginal scores or test profiles, such a procedure was not recommended by the Company's nor by the Unions' experts. (This contention is not accurate, for while Professor Gottesman recommended (T.1500) that *all* test-takers be given a clinical interview, he testified (T. 1425) that it would be "essential" that a clinical interview be given to those who failed the written test; and Professor Shulman was not asked about this issue.) In addition, the Company asserts that interviews by exception would be embarrassing for those interviewed. And the Company opposes an interview as a mode of appeal from an adverse screening, asserting that there would be no justification for substituting the clinical judgment of a single professional for evaluation of the written test by IPAT.

Among the 140-odd comments submitted to the NRC on its proposed rule, at least one opposed any requirement for psychological assessment. Wisconsin Public Service, Comment Red # 116, NRC # 137. (For convenience, I am giving the number assigned to comments in the red-covered volumes prepared by the Company, and also the NRC number). At least one other utility opposed using any written test, for asserted lack of demonstrated validity, although it says it uses "other, more reliable, screening techniques". *Rochester Gas & Electric Co.*, Red # 50, NRC # 82. With few exceptions, all the other comments favor or do not object to psychological screening.

The comment (Red # 54, NRC # 44) of Institute for Personality and Ability Testing (IPAT), written by David H. Madsen, Ph.D., Associate Director, Test Services Division, stands alone (or virtually so—I have not

re-read the comments to be sure there are not one or a few others) in suggestion that clinical interviews can be eliminated altogether or almost so. Writing "at the request of one of the utilities for whom IPAT provides psychological screening services", Madsen, after commenting that the rule should permit test interpretation to be performed "under the direction of" a licensed Ph.D. psychologist (rather than "by" such a person), says:

> I would encourage the Commission to consider the administration and cost burdens associated with mandated reviews for *all* negative or inconclusive psychological evaluations. The typical in-depth clinical interview probably costs $400.00 and would take between one and two hours. If you screened 1,000 people at an average cost of $40.00 per person and had to refer 100 people . . . at $400.00/person, you would add an additional $40,000.00 to the original cost of $40,000.00 Additionally, it would take, *under the best of conditions*, a psychologist almost four full weeks to conduct the interviews. I doubt that many utilities could afford to have people sitting around collecting wages until a psychologist can conduct an interview during a scheduled (sic) outage.

b. *Evidence supportive of need for interview*

The record contains a tremendous amount of evidence supportive of the need for clinical interviews, at least for individuals who "fail" the written test or who have marginal scores or profiles.

Expert testimony: Professor Gottesman, one of the Unions' experts, recommended that every employee be given a written test, followed by a clinical interview and that those who were screened out be given the right of appeal to another clinical interview "by their own choice of psychologist or psychiatrist" (T. 1500). Previously, when asked whether there would be any value to giving a

clinical interview to employees who failed the written test, he said, "It would, in my view, be absolutely essential in order to reduce the number of false positives; that is, to reduce the number of people that the test tells us should be thrown out who really ought to be kept in." (T. 1425). An interview, he said would enable the clinician to ascertain whether the employee had understood the test questions; to observe the employee with respect to matters such as needle tracks, tattoos, and the list of behavior items described in a study made for the NRC (UREG 2076, Un. Ex. 35, at p. 163), such as tremors, complexion changes, fatigue, complaints of headaches, changes in sweating, etc., and also as to "social behaviors" such as irritability, inability to concentrate, whether withdrawn or forgetful, poor eye contact, etc. (ibid, p. 164); also to obtain information about performance on previous jobs, using clues of instability from the written test; and also to review the background information such as credit history, criminal record, marital history. (T. 1428 ff.)

Professor Anastasi: As we have seen, Professor Anastasi confirms Dr. Krug's opinion that statistical evaluation of test data is at least equal and probably superior in predictive ability to judgmental evaluation by a clinician. However, Anastasi makes the following additional points about clinical interviews:

> *The Clinician's Data-Gathering Function*: The diagnostic role of the clinician can be described in terms of data gathering and data synthesis. We shall begin by considering what the clinician can contribute to the process of data gathering. First, by establishing and maintaining rapport, the clinician may elicit from the client pertinent facts about his or her life history not readily accessible in other ways. Such life-history data provide a particularly sound basis for understanding an individual and predicting subsequent behavior . . .

> In the search for facts, the clinician is guided partly by the client's own responses, which provide clues for further exploration. Particular responses, when considered in the light of personality theory, relevant research findings, and professional experience, lead to the formulation of tentative hypotheses. The hypotheses are then tested by gathering or examining additional pertinent data. . . .
>
> A third way in which the clinician contributes to the fact-finding process is by serving as a stimulus in an interpersonal situation. In this regard, the clinical interview functions as a situational test or simulation. It provides a sample of the client's interpersonal behavior, observed under more-or-less controlled conditions.

* * * *

Then, after reviewing various studies comparing clinical and statistical evaluation of data such as test scores (see the previous quotation from Anastasi), she goes on to say:

> It is important to bear in mind that all these studies dealt only with methods of synthesizing data, when clinical and statistical procedures are applied to the same data. A major contribution of the clinical method, however, is the obtaining of data in areas in which satisfactory tests are unavailable. Systematic interviewing, case histories, and direct observation of behavior ware still the principal sources of information on many aspects of personality. None of the studies on clinical versus statistical prediction reflect on the clinician's data-gathering function.
>
> In the second place, the clinical method is better suited than the statistical method to the processing of rare and idiosyncratic events whose frequency is too low to permit the development of statistical strategies. Although any one such event occurs in-

> frequently, it may significantly affect outcome in an individual case. Moreover, different "rare events" will be encountered often enough to have a substantial effect upon the decisions reached in large numbers of cases. . . .
>
> Furthermore, whatever the theoretical possibilities, there remains a vast multiude of clinical decisions for which no statistical formulas have yet been developed. As Meehl (1957, p. 273) expressed it, "Mostly we will use our heads, because there just aren't any formulas . . ." . . .
>
> In summary, the most effective procedure in our present state of knowledge combines clinical and statistical approaches . . .

Obviously the foregoing excerpts pertaining to clinical diagnosis did not deal expressly with screening at nuclear plants. However, in her comment (Red # 2, NRC # 27) concerning the Proposed Rule of the NRC, Professor Anastasi wrote on November 26, 1984:

> . . . I want to emphasize . . . that the proper use of personality tests requires the interpretation of scores in combination with other data about each person. Scores on personality tests cannot be interpreted routinely; the same score may have different meanings for different persons, when considered in the light of facts from the individual's background and other sources. Such interpretations are most effectively formulated in the course of an interview by the professional specialist who is knowledgeable, not only about the nature of the tests and relevant research, but also about up-to-date findings of behavioral science.
>
> A principal purpose of such professional interviews is to elicit additional pertinent facts through skillful questioning. The questions are typically follow-ups to clues gleaned from first responses, background

> data, and other investigatory procedures. By this method, the information from the various scores is integrated for the individual person. Moreover, the tentative interpretations and conclusions generated by the data are progressively tested by the further facts elicited through questioning. It is only by using tests in this manner that we can provide the maximum protection of the individual against unfair conclusions and over generalizations, and the maximum protection of the public against the polcement of psychologically unsuitable persons in potentially dangerous situations.

American Psychological Association: On December 7, 1984 the president, president-elect, and the executive officer of the American Psychological Association wrote to the NRC (Red #83, NRC #63), "on behalf of the 76,000 Fellows, Members and Associates" of the Association. They wrote:

> The major point that we must make, and emphasize strongly, is that psychological tests should never be used alone, and should never be used without interpretation by a qualified professional, as a basis for decision making. The widespread belief that certain tests can be used alone to make determinations is simply wrong. Psychological tests are important, sometimes invaluable, tools in the evaluation of an individual—but they must be combined with professional interpretation to have the necessary reliability and validity. Again, the APA code of ethics requires that interpretation accompany testing, and the proposed rules should also reflect this reality.
>
> * * * *
>
> The proposed rule states that the "psychological assessment program shall consist of written personality tests and, if needed, clinical interviews . . ." We must state, for the reasons mentioned above,

> that the clinical interviews *must* follow the psychological testing—for individuals whose test results indicate no risk, for those whose results are inconclusive, and for those whose test results indicate the possibility of risk.

In a separate comment, William Schofield, Ph.D., signing as Chairman of the Committee on Professional Standards of the American Psychological Association, wrote (Red #73, NRC #26):

> A . . . clinical interview . . . *only* for those applicants whose test results are "inconclusive or indicate abnormal personality traits" . . . is seriously defective.
>
> * * * *
>
> The proposed regulation is in direct contradiction to well established principles and practice regarding the use of psychological tests for purposes of personality screening. It entails the *assumption* that all such tests have a *zero* rate of false negatives . . . The psychometric literature provides ample evidence that this is not a valid assumption . . . .
>
> * * * *
>
> . . . The regulations should require *both* psychological screening tests and personal, professional interviewing of *all* applicants for security sensitive positions.

NRC-commissioned study by Assessment Designs, Inc.: This study (NUREG/CR-2075, Un Ex 34), completed in December 1980 and published in July 1981, had as its object the development of standards for the assessment of emotional instability in applicants for nuclear facility positions. (p. iii). The study concluded that "for positions of considerable on-the-job stress, the selection system would include the MMPI, the 16PF, the clinical interview, and, in the case of some positions, situational simulations." (p. iii). The report states:

> Despite the relatively insufficient statistical support for the clinical interview, it appears to be a vital element in integrating the data derived from other instruments in a selection procedure designed to screen out emotionally unstable job applicants. This technique, if properly structured and conducted by well-trained professionals, appears to be the only means of clarifying inconsistencies in the results of other instruments, as well as probing for further information regarding problems revealed by previously administered components of the selection procedure. It can also assist in determining whether faking revealed by other instruments was due to misunderstanding rather than intentional deception.
>
> The structured clinical interview format offers promise for well-designed reliability and validity studies, which would further substantiate its use in a nuclear facility personnel selection procedure. (p. 6-67).

Testing Services: I have not endeavored to collate the comments of all firms and individuals asserting experience in assessment of individuals for nuclear employment. However, as has previously been noted, Behaviordyne, which claims to have processed more individuals than any other service (upwards of 21,000), uniformly includes a clinical interview as part of the screening procedure for *all individuals*. (Red #136, NRC #106). So also does Stress Control Services, Inc., which has conducted 1 over 15,000 screenings: moreover, persons considered for rejection receive a second, and sometimes a third, clinical interview (Red #36, NRC #66). Behavior Analysts and Consultants (Red #47, NRC #57), with experience in over 3500 nuclear plant screenings, recommends a single written test followed by a structured clinical interview if the MMPI data are inconclusive of instability. Personnel Decisions, (Red #44, NRC #68), which has done screening for Northern

States Power, Inc., similarly follows the practice of clinically interviewing "potential employees who have produced abnormal, defensive or suspicious profiles".

Independent psychologists: Generously sampling the comments of apparently qualified psychologists/psychiatrists who wrote on their own or on academic letterheads, I collated those included in Red comments nos. 1 through 50, with the following results:

Total number of comment writers:	26
Practice or favor interviewing all tested individuals	20*
Practice or favor interviewing individuals who fail written tests or are marginal	2
No comment as to interviewing	4

* Of these at least 4 interview for Behaviordyne.

Among the 20 favoring an interview for all individuals tests is Harrison G. Gough, Ph.D., Professor of Psychology (and former Department Chairman) at University of California, Berkeley, as well as individuals associated with the Pacific Graduate School of Psychology (some or all of whom may work for Behaviordyne), Wright State University (Dayton), or San Jose State College. One of the individuals favoring clinical interviews on a selective basis is Gerald L. Borovsky, Ph.D., Director of Psychology in the Department of Psychiatry at Massachusetts General Hospital and a member of the faculty of Harvard Medical School.

Nuclear operators: Among the 140-odd comments to the NRC included in the record are those of 27 nuclear operators, as well as Edison Electric Institute (whose membership includes 71 operators with full licenses, 4 with low power licenses, and 27 plants under construction) and KMC, Inc. (which wrote on behalf of 23 members including 16 of the operators who submitted individual comments).

Edison Electric Institute and 8 of the nuclear operators expressed the view that the industry is currently handling security adequately and that there is no need for any regulation beyond the ANSI standards. Reserving that position, most of the writers proceeded to comment on the proposed rule. (It should be noted that the rule covers several topics beside psychological assessment.)

KRC, Inc., which presented its views as the consensus of its 23 members (and, in its opinion, of the industry) proposed that the screening should comprise a "clinical interview for individuals whose personality test results are inconclusive or indicate abnormal personality traits". It wrote (Red #138, NRC #11):

> Tests admittedly are not perfect. They raise hypotheses about an individual's behavior, but they do not *prove* that behavior beyond a doubt. Test data should not be the sole source of denying an individual unescorted access. Therefore, out of fairness to the individual, a clinical interview should be conducted to find out whether the individual manifests those identified behaviors or traits in his or her life. Without interviews, utilities would be screening out many inadvertently who would be screened in (false positives). (Some utilities interview all applicants regardless of test scores.) In the final analysis, as indicated, experience has shown approximately 4% of applicants have been screened out due to the psychological screening component.

Edison Electric Institute (Red #120, NRC #110) suggested that the requirement of a psychological assessment should be phrased in the following general terms, in order to permit individual operators discretion in the choice of methods:

> Reliability and stability shall be indicated by the result of a reliable written personality test or by

any other professional acccepted clinical assessment procedure. The results of such test or procedure, including an interview if required, will be evaluated by, or evaluated in accordance with the procedure or guidelines approved by a qualified, and if applicable, a licensed psychologist or psychiatrist.

One operator (Boston Edison) wrote that it used MMPI and required all individuals to have a clinical interview.

Nine operators (Baltimore Gas & Electric, Duke Power, Florida Power, Houston Lighting and Power, Pennsylvania Power and Light, Public Service Electric and Gas, Public Service of New Hampshire, South Carolina Electric and Gas, and TVA) wrote that they were already using or expressly that they favored interviews for individuals who failed the written test or had marginal scores. Eight others (Arkansas Power and Light, Carolina Power and Light, Kansas Gas and Electric, Louisiana Power and Light, Niagara Mohawk Power, Rochester Gas and Electric, Sacramento Municipal Utility District, Virginia Power, and Wisconsin Electric Power) implied that they utilize some interviews or favor doing so. (Of the 17 companies listed above, five are members of KMC, Inc.) Seven operators made no comment about the clinical interview (Commonwealth Edison, Consumers Power, GPU Nuclear, Northeast Utilities, Northern States Power, Portland General Electric, and Public Service Company of Colorado)—three of them are members of KMC, Inc.

Among the comments made by operators are:

Public Service Co. of New Hampshire (Red #26, NRC #87):

Although we use both the MMPI and the PF16 . . . we do not agree with the need to require the use of both tests. The test portion of the screening program merely identifies personnel for further evalua-

tion. The test results are not used to deny access. Personnel who obtain abnormal test scores are referred for interview to determine the extent of the problem . . . .

Houston Lighting & Power Co. (Red #94, NRC #85):

We concur with the inclusion of psychological assessment in the amendment as stated.

* * * *

. . . Should the decision be made to not recommend security due to psychological factors, it will not be done on the basis of arbitrary or capricious use of test scores. Rather such decisions will be based upon professional judgment utilizing test information in light of the clinical interview.

Pennsylvania Power & Light Co. (Red #108, NRC #120):

In general, PP&L supports the proposed rules . . . PP&L has considerable experience in processing both employees and contractor personnel having processed approximately 11,000 clearances since 1978 . . . . Since 1978, the PP&L program has indentified 81 individuals as potential risks due to . . . background investigations (0.7%), 118 due to psychological evaluations (1.1%) and 27 for a combination of background investigations and psychological evaluations (0.2%). In addition, 20 individuals have been referred under the continual behavioral observation program (0.22%) . . .

* * * *

During the clinical interview, the psychologist has the oppportunity to observe and question into those areas which can be considered in the overall prediction of unreliability. PP&L's experience with using psychological evaluations, in particular, clinicial as-

sessment by a licensed psychologist, has identified that 4% (sic—apparently a typographical error for "1%", since the next sentence mentions 118 individuals) of all individuals processed are denied unescorted access authorization. The PP&L psychological evaluation process has identified 118 individuals as potential security risks.

South Carolina Electric & Gas Co. (Red #109, NRC #124):

There are two extremely important needs in MMPI psychological testing: First, to provide the organization with as much assurance as possible that the persons cleared are psychologically fit for responsible work, and secondly, to be fair to the persons tested. SCE&G meets these needs by combining testing with selected interviews. Interviews assure that the individual's test scoring is not biased by external factors such as temporary emotional distraught due to marital separation, death of a loved one, etc.; the inability to read; a very conservative religious background; failure to comprehend the impact of double negatives; or a conscious attempt to make the best possible impression.

As of July 1984, 2836 MMPI tests had been administered to SCE&G and contractor employees . . . Of this number, 915 tests revealed evidence of elevated scales. Subsequent item analysis and interviews performed by a counseling psychologist resulted in 134 rejections (5%).

Baltimore Gas & Electric Co. (Red #102, NRC *#109)*:

A program that would use psychological testing without review and/or interview by a licensed psychologist is *not* a satisfactory alternative. The following data were collected at BG&E from June, 1976, to

February 1985: of 7409 workers evaluated in this program, 1145 were interviewed by clinical psychologists regardless of their MMPI scores because of their job category (e.g., security guard), and 6264 were screened by MMPI in order to determine the need for interviews. Of the 1145 workers receiving mandatory interviews, 31 were denied access. Of the 6264 screened by the MMPI, 1563 were referred for interviews, and only 101 of these were ultimately denied access. These data support our contention that access should never be denied on the basis of the MMPI alone. If we had rejected personnel without the benefit of an interview, 1462 individuals or 23.3% would have been false negatives. There are some innocuous reasons why individuals might get deviant MMPI scores, such as language comprehension problems, poor educational background, etc. The interpretation of these test scores requires professional judgment and an hour-long clinical interview."

c. *Evidence as to feasibility and expense of interviews*

The cost to the Company of the mini-IPAT screening was $40 per employee. It argued that it would not have been feasible to provide clinical interviews for any large number of employees in the time available.

Dr. Gottesman, one of the Union's experts, testified that in his opinion, the requisite number of psychologists (with available time) to interview the employees who failed the written test could have been located readily in St. Louis or Columbia. Also he had ascertained that Personnel Decisions, Inc. (of Minneapolis), which had done screening for Northern States Power, charges $25 for administering and scoring MMPI and $150 for a clinical interview and report; he did not know whether they would come to the site. Professor Shulman said

that Behaviordyne and Stress Control, each of which has done extensive screening for nuclear licensees, would send psychologists to the site and would charge $175 and $150, respectively, for administering the MMPI and interview combined.

Union Electric paid for the screening of the Company's employees performed by IPAT; if the Company had utilized a different testing service, Union Electric would not have paid. However, there was no testimony that it would not have been feasible to have clinical interviews following the IPAT testing, just as had occurred with Union Electric employee/applicants who appealed the test result; whether Union Electric would have paid for such interviews does not appear.

2. *Discussion—Lack of provision for at least selective interviews precluded the psychological screening from being reasonable.*

From the foregoing evidence, I conclude that the lack of provision for at least an optional clinical interview for those individuals who failed the written psychological test precluded the psychological screening from being reasonable insofar as concerns the grievants.

The Company's experts, Drs. Krug and Freud, stand virtually alone, among all the authorities whose opinions are in the record, in maintaining that a written test is sufficient, without any clinical interviews.

I am mindful that, as I have stated, neither the old or the new APA standards, nor the APA ethical standards, expressly state that, even for purposes such as the present screening, there should be some provisions for clinical interviews in conjunction with a written test. However, the comments addressed to the NRC by the top officials of the APA and by the chairman of its Committee on Professional Standards, as well as the comment by Professor Anatasi (one of 10 members of an

adhoc review committee of APA's governing body appointed to review the New Standards) furnish convincing evidence that in the profession the APA Standards are understood to apply, where diagnosis is involved, to the formulation and administration of written tests as as an adjunct to clinical interviews.

While there are no established means of determining the reliability or validity of clinical interviews, the clinician can have available to him the test answers and the test scores (on the individual scales as well as on the overall test), and can weigh that additional information along with the information he gains from the interview. Indeed, the authorities point to that additional information as an important reason for including an interview in the screening procedure.

Clinical interviews, at least for those who failed the psychological test, were especially indicated in this case because nobody with any appreciable clinical experience had any input either into the design, the weighting, or the scoring of the test. Moreover, the test was designed, weighted, evaluated, and scored by one person—Dr. Krug. It was Dr. Krug who determined that the particular scales included in the test were relevant to the security-risk determination; it was he who determined the relative weights to be given to each scale; it was he who set the 190 cut off; it was he who instructed the reviewers when to consider departing from that cutoff. Given this unusual monocracy, the opportunity for review by a clinical professional was, in my opinion, a necessity.

I find it significant that, of the numerous utilities which commented on the psychological screening, few opposed clinical interviews as such and a considerable number, who had kept statistics on their screening, expressed the opinion that clinical interviews for at least selected individuals are indispensable. While it may be that most of those utilities were using the MMPI, my discussion of the validity of the mini-IPAT a battery

leads me to believe that it is not sufficiently accurate as a predictive device to warrant sole reliance on it without at least selective clinical interviews.

While Dr. Freud emphasized the embarrassment that an individual might feel if singled out for a clinical interview, I believe that possible loss of job outweighs whatever embarrassment the employee might feel. Alternatively, of course, all the employees could be interviewed.

I am aware that many credible authorities urge that without interviews for all, there will not only be an undue number of false positives (stable individuals who are excluded from the jobsite) but also an undue number of false negatives (unstable individuals who are given unescorted access because they passed the written test). However, that is primarily a matter to be considered Union Electric, as the licensee, and by NRC (albeit it is of concern also to every citizen and particularly to persons working at the site). In the present case the focus of the grievances is that grievants were deprived of employment.

Use of the written test alone, and of a cutoff score, has the superficial appeal that all individuals are being measured by the same standard. Such a procedure has much to recommend it when the test has demonstrably high validity and can be demonstrated to do a reasonably good job of separating the emotionally unstable from the stable. However, if the test is inadequate as a predictor, its uniform use as the sole screening device can lead to incorrect and unfair results just as would (to take an absurd example) determining college admissions on the basis of handwriting legibility.

I have considered the probable cost of providing selective interviews and have concluded that, when viewed in relation the Company's total administrative and labor costs for the project, the added financial burden of such interviews would have been relatively insignificant.

V. GRIEVANCES WHICH TURN ON OTHER GROUNDS

A. *Grievants who were rejected for adverse background information—three grievances sustained, five denied*

Eight grievants were rejected in whole or in part because of background information which Union Electric's security officer deemed to render them security risks. Of the eight, six had passed, two had failed, the psychological screening. As to each of the eight, the Unions contend that the classification as security risk was unwarranted.

First, I consider the threshold question (already discussed) of the Company's co-responsibility for denial of clearance. The background information (to the extent that it was not self-reported by the employee on the background questionnaire) was collected by Equifax, Inc., who made a written report to Union Electric; it was then reviewed by Gary Pendergraff, Union Electric's Superintendent of Security at the Callaway Plan, and it was he who decided whether to grant or deny clearance.

A background check for employees other than those with "good guy" letters was part of the security plan submitted to NRC by Union Electric as a condition of obtaining its operating license for the Callaway Plant. The Unions do not quarrel with the necessity for this background check. However, they assert that "just cause" should be limited to employee misconduct, and even if it extends to an employee's prior record, that the Company has not shown for these eight employees background information constituting just cause.

I have already quoted the portion of Union Electric's Security Department Procedure dated October 21, 1983, which calls for a background investigation that meets the requirements of ANS 3.3 and makes provisions for approval of contractor screening programs.

ANS 3.3-1982 requires the following investigation for an employee who does not have a "good guy" clearance:

For Access to	Prior employment	Education	Criminal convic'ns	Two listed and two developed ref'ces
Protected areas	2 yrs.	2 yrs.	2 yrs.	——
Vital areas	3 yrs.	3 yrs.	3 yrs.	X

It also says:

> If screening which meets these requirements [including psychological evaluation and continued observation] has been performed by another employer, rescreening should not be required for granting unescorted access. The employer should certify to the owner organization that screening meeting the requirements of this standard has been accomplished. This should be documented on a form containing the necessary information.

Thus, by the terms both of the ANSI standard and Union Electric's security program, it was contemplated that screening, including the background investigation and its evaluation, could be performed by the contractor and the results accepted by the owner-licensee (in this case Union Electric). Although no screening program was proffered to Union Electric by the Company, any such plant would probably have had to include a self-report questionnaire and an investigation like that made by Equifax. See Union Electric Program, section 4.2.2.1 and .2 pertaining to contractors availing themselves of Union Electric's Program. The Union Electric Program includes a form of "Screening Verification Letter" for use by a contractor to inform Union Electric that a named employee has been screened in compliance with the provisions of ANS 3.3, which states:

> This screening disclose no indication of aberrant behavior or evidence of untrustworthiness. There-

> fore, we are requesting that this employee be granted unescorted access to the Callaway Plant.

Such letters were accepted from a number of contractors whose security-screening programs had been approximately Union Electric.

As we have just seen there is express sanction in the ANSI standards for such acquiescence and Union Electric accepted screening by other contractors. Hence I feel warranted in finding that Union Electric would have gone along with a program calling for a self-support questionnaire, an investigation like the one made by Equifax, and evaluation of the information. Moreover, it is my opinion especially since the Company could have undertaken to collect and evaluate the background information, that it had a contractual responsibility (by virtue of the prohibition against discharges other than for cause) to inform itself as to Union Electric's reasons for each background-based rejection and to give the employee involved an opportunity to respond to the adverse information. Accordingly, I conclude the background check was an area of screening for which the Company shared responsibility in relation to its own employees.

Before turning to the evidence concerning the individual grievants, I have to determine what criterion is appropriate for my review of these grievances.

As to the psychological test I considered the issue to be whether the test was reasonable and appropriate. The 1982 ANS standard, and the Union Electric program, prescribe that the psychological evaluation shall be by a "reliable and valid written personality test or other professionally accepted clinical asessment procedure." If the test procedure is not reliable and valid, its results will be justifiable and, therefore, the test would be reasonable and appropriate. In the context of this contractual controversy between the Unions and the Company it was proper for me to determine whether the test was reasonable and appropriate—i.e., reliable and valid.

The issue as to denials of clearance for adverse background information calls for a similar but somewhat different approach. The Unions do not attack the procedure of the background investigation/evaluation, but *as to certain individuals* contend that the Company has failed to prove existence of a security risk. Thus the Unions would have me weigh as to each grievant whether the Company has sustained the burden of proving that he was a security risk. However, unlike the typical industrial discharge case these grievances turn not on shop justice but on security of the nuclear installation, with which not only the Unions, the grievants, and the Company, but also NCR, Union Electric and the public are concerned. I believe that the judgment as to whether an individual's background makes him a security risk must be that of the nuclear operator or the contractor (to whom the operator is authorized to delegate the determination). However, since the Company has contractually agreed not to discharge employees except for cause, and since it shared responsibility with Union Electric for the background screening, it is competent for me to determine as to each exclusion whether the judgment was justifiable—that is, whether it was a reasonable rather than an arbitrary one.

L.A. Cantenbury and L.G. Carroll:

Both these men were members of IBEW, Local 257. The only information in the record concerning the denial of clearance is in a summary sheet prepared by the Company, Co. Ex. 11, which states that each of them "failed" the background investigation. The record includes neither a security questionnaire nor an Equifax report for either of them. Co. Ex. 11 is not an original record, but a compilation prepared for this case. Each of them passed the psychological screening. On this record I find that there was no substantial basis for denial of clearance to these two men nad that it was not justifiable.

Jack Gluvna: In January 1985 Equifax reported that its original report, stating that it had found a criminal conviction, was erroneous, having been based on another person with the same last name. (T. 100). Gluvna passed the psychological screen and the physical security exam. Since the Company shares responsibility for the background investigation, I find it shares responsibility for Equivax error. I find that denial of clearance to Gluvna was not justifiable.

MRG: This man had been continuously employed by the Company for 32 months—not quite enough for a "good guy" letter. He passed the psychological screening. When he filled out a security questionnaire early in 1984, he stated that he had been convicted of marijuana possesison in 1975. The Equifax report, dated February 29, 1984, showed, "6/21/79—Posession of Controlled Substance—over 35 grams, Cole County, Missouri, 5-year probation/discharged." He was terminated on April 12, 1984; in May 1984 he was hired at the plant by a subcontractor, at which time he again filled out a security questionnaire, but was again discharged. So far as appears from the record, MRG had no further drug conviction after 1979; since he lived on a Jefferson City rural route (presumably in Cole County, where he was on probation) it is likely that any further drug trouble would have shown up in the court records of Cole County. On direct examination MRG testified that the "1975" date given on his first questionnaire was an inadvertent error; in fact, when he filled out the second questionnaire, he gave the date of the conviction as 6/10/79. However, on cross examination, when asked if he had any other drug convictions, he admitted a 1974 Oregon conviction which he had not reported on either the first or the second questionnaire. In view of his 32 months of employment with the Company and his apparently satisfactory conduct for over four years of his probation I might have been inclined to treat the "1975" backdating as an in-

advertent error. However, while in a discipline case I ordinarily confine my review to information available at the time of the disciplinary action is taken, here Grievant's own testimony (about the Oregon conviction) casts doubt on his trustworthiness. I believe that denial of clearance to MRG was justifiable.

SEJ: This man's questionnaire answers disclosed the following drug convictions:

> 1972: Possession of pot, misdemeanor. Fine and probation.
>
> April 1983: Possession, felony. Probation.
>
> December 1983: Possession of pot, misdemeanor; $100 fine. Theft of under $50. $200 fine.

SEJ reported that he went to a hospital for treatment 18 days after the December 1983 arrest for "drug addiction". The Company did not introduce the Equifax report on SEJ; the Union had a copy, but did not introduce it because (according to the Unions' brief) SEJ was not available to testify and the Company had not offered any testimony or evidence as to why SEJ was denied clearance. Clearly the information supplied by SEJ himself on his questionnaire renders justifiable the denial of clearance. His grievance will be denied.

CAN: On his questionnaire (Co. Ex. 28) CAN reported that he had twice been convicted of assault, and as I read his answer, once of disorderly conduct; he gave the dates as 1978, 1979, and 1981. He also reported that in 1982 he had been "fired" from a job he had held for a year, and in 1983 had been discharged from a job he had held for two months. In his questionnaire CAN checked the "I want" box on item 26:

> I want [] I do not want [] an interview with a security representative to discuss my background.

In his testimony CAN said the first assault conviction arose out of an incident during a riot at the State Fair:

he was not taking part but was suddenly seized from behind and struck his assailant, only to discover it was a police officer; and the second conviction arose out of his striking a man who came at him with a knife. He pleaded guilty to the first charge and was fined $50 and $30 costs) because, he said, a lawyer told him he would charge $1500 to take the case to a jury. He pleaded guilty on the other charge because he was told that the second degree assault charge, a felony, would be reduced to a misdemeanor and a $100 fine if he pleaded guilty. CAN did not in his testimony say whether he had ever had the requested interview with a security representative.

In my opinion denial of clearance to CAN was justifiable. Even if he had an interview, a security representative could not reasonably be expected to have credited CAN's explanations (which would be virtually impossible to verify) of why he twice pleaded guilty to assault charges. His grievance will be denied.

MEP: This man failed the psychological screening and also the background information investigation. No adverse information appears on his security questionnaire dated February 8, 1984; it comprises no questions concerning credit, except, "Have you ever declared bankruptcy?", which he answered, "No." The Equifax report lists no criminal record, but shows a "Chapter 7 bankruptcy dating 1-84"; it also shows unpaid judgments as follows:

6-80	$1573 Don and Jan Hammen
12-80	$820 Eldon Properties
9-83	$267 Shell Propane

In his testimony, MEP stated that his money troubles stemmed from an industrial accident he suffered in 1980, which disabled him for some months and occasioned substantial medical bills, and that he had not received a settlement of the Workers Compensation claim until

August 1984, after which he paid the hospital bill, even though it had been discharged in bankruptcy. (He also gave explanations of the debts). While I might be disposed to find that the unpaid judgments and the filing of a bankruptcy petition did not constitute a justifiable basis for refusal of security clearance, the fact that MEP denied ever having "declared bankruptcy" only a month after filing a Chapter 7 petition compels the conclusion that denial of clearance was justifiable. His grievance will be denied.

BJT: This man passed the psychological screening. He was regarded as trustworthy and reliable by a company with whom he had worked as an apprentice for 4½ years until 1982 when he went to work on the Callaway project. His employment on the project by Delcon, a subcontractor, lacked only 9 days of entitling him to a "good guy" letter. He graduated from high school in Columbia, Missouri in 1975, and thereafter took some courses at the University of Missouri, completed the IBEW-NECA; apprenticeship program, and became a journeyman. On his questionnaire he said he had used marijuana, but that it had not been a problem for years; that he had been an excessive user of alcohol but had received counselling and been released from a program by a private counselor; that he had the following criminal convictions:

1975—altered driver's license
1975—possession of marijuana
1975—DWI
1978—DWI
1980—careless and imprudent driving
1981—brandishing a deadly weapon

He added, "Had a rough childhood. Anything not mentioned was not intentional but only forgotten. If you need any explanations concerning any problems with my atrocious police record or treatment received from alcoholism, please feel free to contact me."

Of the two "developed" references interviewed by Equifax, one had known BJT for 8 years and considered him "a very dependable person" and the other had known him for 6 years and considered him a "very nice man"; both thought he would be trustworthy and reliable in a nuclear environment.

If the decision were mine to make, I might well find that the positive features of BDT's history clearly negatived any risk suggested by what he himself terms an "atrocious" criminal record. However, applying the criterion that I have laid down, I have to conclude that their denial of clearance to BDT was justifiable. His grievance will be denied.

B. *Nine grievants who failed the physical security exam and three who were non-readers—grievances denied for want of jurisdiction*

1. *This who did not pass*

Following is a summary of the evidence concerning the 9 grievants who did not pass the security exam:

Charley Belk: Testified that he wasn't given a book to use in studying for the retest. Notice of the retest was given to him during his night shift (11:30 to 7), when he was told the retest would be at 3:30 the following afternoon. Was "kind of tired and nervous" when he took the test.

Larry L. DeBrodie: Testified that he had finished the eighth grade, but that he had difficulty understanding the questions on the security exam. He does not read newspapers; he said he could read some, but not all, the signs in the plant.

Thomas Dunniway: Had about 21 years experience as a painter. Having been told that he would be terminated if he failed the security test, on learning he had failed started looking for other work. Left

the job about a month before he would have been terminated. (Also failed the psychological test.)

Thomas E. Dixon: Took the test twice. Scored 20 (out of 100) first time, 30 the second time. Passing grade was 70. Instructions called for marking only one of the several answers; on several of the questions Dixon marked two answers.

Wayne Elliott: Took the test twice. Scored 65 the first time, 60 the second time; the second time marked two answers for one of the 20 questions.

Leonard Heckman: Failed the security test. Took it only once. Also failed the psychological test, which he was unable to finish in four hours on the first day, but was allowed to return and finish it the next day. Had worked on the project intermittently since 1981, having quit several times because he was "tired of the job".

John Duane Johnson: Testified that he finished eighth grade, but reads at third or fourth grade level. His test was unscorable because of reading difficulties. Had difficulty reading psychological exam; does not read newspapers. "Recognizes" but does not read danger signs in plant; if they were to be changed he might not understand them unless someone first explained them.

Harry O. Struemph: Took the test only once. (T. 278-9).

Marvin P. Willer: After failing the security test, had the booklet but said he did not have a chance to study it because he had to work on the project 10-12 hours a day and 7 days a week. About two weeks elapsed between time he learned of first failure and the date of the retest.

The Union argues that four of these grievants were given the test only once; that since at least one employee

was allowed to take the test a third time, so should all these nine; that employees were not given an adequate opportunity to study the booklet for the first test (apparently they had 15 or 20 minutes prior to a slide show); that poor readers should have been allowed to have the test read to them; that Belk was given the retest after only a short rest and was tired and nervous; that misunderstanding of the instructions may have led to Dixon's marking dual answers (the Unions assert that in each instance one of the dual answers was correct; however, in several of those instances Dixon had marked both "True" and "False").

On the evidence, it would be difficult to conclude that there was any inequity with respect to Dixon (who marked numerous dual answers and had a very low score) or Willer (who had two weeks in which to study for the retest). DeBrodie and Johnson had such low reading ability as to render questionable their ability to understand signs in the plant. Belk, Dunniway, Elliott, Heckman, and Struemph might possibly have passed on an additional retest, had they been given and availed themselves of an opportunity to study the booklet further. However, there is no evidence that any of them or the Unions asked for such a retest or study time.

Item 3.3.3 of Security Department Procedure SDP-ZZ-PP0004 (Co. Ex. 8) states:

> Each person authorized unescorted access shall receive a security orientation as part of the General Employees Training Program *administered by the Callaway Plant Training Department.* (my emphasis)

The security exam is not comparable to the background investigations and psychological evaluations, for which the contractor could arrange procedures equivalent to Union Electric's. There is no evidence that Union Electric was willing to "farm out" the physical security

orientation, which had to be tailored to the specific mechanisms, codes, and procedures followed at the Callaway Plant. Corroborative of this conclusion is the fact that, while the Procedure expressly states that a "good guy" letter will exempt an individual from the background investigation and psychological evaluation, it makes no similar statement as to "good guy" exemption from the physical security exam.

Accordingly, I consider the physical security test as completely beyond the control of the Company and as falling within the reasoning of *Foley Co.* v. *IBEW*, cited by the Company and previously discussed.

The grievances of these nine employees will be denied.

2. *The three non-readers*

Several grievants testified that they had difficulty reading the psychological test or the physical security exam, or both. Some of these grievants are included in those who took and failed the security exam. Three others (CA, T. 962; BW, T. 952; CW, T. 980) testified that they could not read at all; they did not, or were not permitted to, take the security exam.

While opinions might differ as to what level of reading ability Union Electric should reasonably require of persons having unescorted access, complete inability to read would render a person unable to understand safety instructions, signs, and warnings in the plant.

Accordingly, I find that these three men have to be viewed as though they failed the physical security exam. Their grievances will be denied.

C. *Leander Bax—Grievance Sustained*

Leander Bax was a member of IBEW Local 2. Local 2 never had more than a handful of members working at the job site. According to George Monckton, business

representative of the Local, its jurisdiction was confined to "outside" work and with the one exception mentioned below, was restricted to maintenance of the feeder power lines bringing power to the site from external sources and doing minor projects such as street and parking area lights. Its jurisdiction stopped at substations 1 and 13, which were outside the protected area although within the perimeter security fence. All other electrical work on the site (even though it might be out of doors) belonged to IBEW Local 257—which had jurisdiction over the power plant construction.

The one exception was that for about a week in late August 1984 two Local 2 members were assigned to filtering oil in the "345" step-up transformers. Neither of them had security clearance, and for the week's work they were escorted.

Bax, who had failed the psychological test, had been employed on feeder-line-maintenance work since March 14, 1983. He was terminated on April 12, 1384 for lack of security clearance. On April 18, 1984 he was referred to the jobsite by the Union, but turned around. He was employed from July 23 to July 26 and from September 19 to October 5, 1984 on jobs at the site, perhaps not requiring security clearance. Another Local 2 member, W. Wyllen, who did have security clearance, was employed from April 26 through August 21, 1984, to do exactly the same work that Bax had been doing up to April 12. While it was possible that prior to Union Electric's "taking over" in August there might have been short-term line work to be performed by Local 2 within the protected area, Bax could have been escorted for that work just as were the other two Local 2 men.

According to Monckton, Mitch Rugg, the Company's project superintendent, haid said in April that, as long as they were not working in the protected area, Local 2 members would not be "laid off". Subsequently, when

Bax termination was grieved, Rugg (according to Monckton) said that his name was on Union Electric's list of persons lacking clearance and that the Company had no choice.

The Company was necessarily aware that Bax' work did not take him into the protected area. It could have raised this point with Union Electric, but there is no evidence in the record that it did so.

I find that Bax was terminated by the Company without just cause.

VI. THE REMEDY

1. By way of partial recapitulation, the following grievances will be denied:

a. Those of MRG, SEJ, CAN, MEP and BJT who failed the background investigation.

b. Those of Belk, DeBrodie, Dunniway, Dixon, Elliott, Heckman, J.D. Johnson, Struemph and Willer, who failed the physical security exam.

c. Those of CA, BW, and CW, who cannot read.

2. Subject to modification if it be demonstrated that I have erred by overlooking evidence with respect to any particular indiivdual or group (see below), all the other grievants will be found to have been discharged without just cause.

On the subject of back pay I have considered contentions made by the Union and by the Company.

The Union contends: (a) that back pay should be awarded to each eligible grievant (not only to certain stewards) for the entire period that work was available on the project for anyone in his craft; (b) that the award should include "front pay" to cover the time that a grievant would have had to spend in obtaining other employment; and (c) that the award should include in-

terest on the back pay awarded. I reject these contentions.

(a) The Union cites two equal employment opportunity cases: *Easley* v. *Anheuser-Busch*, 37 FEP Cases 549 (8th Cir., 1985) and *King* v. *Trans World Airlines*, 738 F2d 255 (9th Cir., 1984). Easley involved three employees; King involved a single employee. With respect to the plaintiffs in those cases, the court (adapting its rule regarding proof of unlawful discrimination) applied to the remedy the principle that, once the plaintiff has made a prima facie case, the burden falls on the employer to prove that the plaintiff would *not* have been selected or (retained) for the work in question. However, in *Anheuser-Busch* the court made plain that, as to remedy, such a rule is inappropriate in a class action, citing *Hameed* v. *International Association of Bridge, etc. Workers, Local 396*, 637 F2d 506 (8th Cir., 1980). *Hameed* was a class claim against a union by black applicants for apprenticeship training. In *Anheuser-Busch* the court said:

> In *Hameed*, a class action involving a disparate impact claim, the court determined the number of class members who were "actual discriminatees" by establishing how many positions were denied black applicants by reason of the employer's discriminatory policies. The court made this estimate by applying the percentage of applicants who were black to the total number of persons hired. The difference between the figure derived and the number of blacks actually hired constituted the number of actual discriminatees entitled to receive backpay . . . .
>
> Unlike *Hameed*, this lawsuit is not a class action. Nevertheless, we agree that it is appropriate to apply similar reasoning in the circumstances of the present case in order to avoid unfarily penalizing Anheuser-Busch.

In this case we are dealing with breach of contract, not with violation of a federally legislated employment policy. I see no justification for awarding to these grievants, as a group, more as back pay than they could reasonably be expected to have earned (given the dwindling man-hours at the project) if they had not been terminated due to the screening procedure but had been laid off in normal course.

(ii) I also see no warrant for "front pay" Grievants are construction workers. It is normal for them to experience gaps between the winding up of one job and obtaining work on another. Arbitrators ordinarily fashion relief only to make a grievant whole for pay that he lost from the employer who terminated him. Tort "damages" are not awarded, because a grievance must stem from a claim of *contract* breach.

(iii) Award of interest on back pay is appparently the exception. See Elkouri, How Arbitration Works, 4th ed., pp. 406-07. Moreover, at law interest is not awarded unless the judgment is on a liquidation claim. I will not award interest.

The Company argues that employees who quit before they were terminated should not be eligible for any back pay. In my opinion, however, if a man quit because of notice that, having failed the screening, he would soon be terminated (for example, Larry Shaw, T. 988) he should not be disqualified from receipt of back pay. The proximate cause of the quit, under those circumstances, was not the employee's desire to go elsewhere, but rather the Company's notice to him that he would shortly be terminated.

I shall reserve jurisdiction as to other aspects of the remedy. At the present juncture, I believe that *all* the grievants, except those mentioned above, are entitled to receive consideration for an award of back pay; however, in working out the details of the remedy I will en-

tertain suggestions that in saying "all" I may have overlooked some pertinent evidence in the record.

My tentative thinking about how back pay should be determined (if feasible) is:

(i) For each craft ascertain the total man hours "paid" beginning with the earliest date on which any member of the craft was excluded for lack of security clearance (the "exclusion date" for that craft). (Laborers shall be considered a craft; Local 2 and Local 257 electricians shall be considered separate crafts.) This is the craft's "employment expectancy". Hours "paid" means hours of straight-time pay, so that a time-and-a-half hour worked will count as one and a half hours paid.

(ii) Out of the total employment expectancy of each craft, first assign "last to be laid off" hours to stewards whose local union agreements entitle them to be the last on the job; and, second, for Local 257 electricans, first assign hours on an average basis to group 1 electricans before assigning any to group 2 electricians.

(iii) Determine the aggregate "adjusted" employment expectancy of other members of the craft by removing the man hours assigned to stewards and to group 1 members of Local 257.

(iv) For each craft, determine the number of employees employed immediately prior to the exclusion date; add to that the total number who quit prior to that date because of notice that they had failed the screening; subtract the number of stewards and Local 257 group 1 electricians to whom man hours have been assigned pursuant to step (ii).

(v) For each craft, divide the adjusted employment expectancy of the craft (man hours paid) ascertained in step (iii) by the number of employees as-

certained in step (iv). This figure an average will constitute the employment expectancy (man hours paid) of each employee included in the step (iv) total.

(vi) From each grievant's "average" employment expectancy, subtract the hours "paid" he had on the project on and after the exclusion date. The balance, if any, will be the hours "paid" for which he is entitled to back pay.

VII. AWARD AND LIMITED RESERVATION OF JURISDICTION

It is my AWARD that:

A. As to "preliminary issues":

1. The grievances are not moot;

2. Grievants were discharged, not laid off;

3. The circumstance that Union Electric required screening of employees for unescorted access did not under the circumstances of this case relieve the Company of responsibility for the psychological test and the background investigation.

4. Security screening is encompassed in the Company's contractual right to establish security rules, but under the terms of the contract such rules must be "appropriate".

5. The Company's right to discharge for cause is not limited to terminations for misconduct.

B. As to the psychological test:

1. The test has adequate "reliability".

2. The test, and the 190 cutoff score, do not have adequate "validity".

3. The test procedure should have included provision for a clinical interview, at least for individuals who did not pass the written test.

4. In view of paragraphs 1, 2, and 3, the test was not a reasonable one and was not an appropriate security rule.

C. The grievances of Belk, DeBrodie, Dunniway, Dixon, Elliott, Heckman, J.D. Johnson, Struemph, and Willer, who failed the physical security test, are denied.

D. The grievances of CA, BW and CW, who did not take the security test because they cannot read, are denied.

E. Grievant Leander Bax shall receive back pay equivalent in amount to the earnings that employee Wyllen received for the period April 26 through August 21, 1984, less his earnings on the project for part of that time.

F. All grievants (including Bax), except the 15 listed in paragraphs C and D above, shall tentatively be deemed eligible for an award of back pay.

G. The following principles shall be observed with regard to back pay:

(1) In determining back pay amounts the endeavor shall be to make grievants whole for any additional pay they would have earned on the project but for their lack of security clearance.

(2) The monetary award shall not include any so-called "front pay".

(3) The back pay shall not include interest on the amount awarded.

H. The arbitrator reserves, and shall retain, jurisdiction as to formulation of the back pay award (both as to perfection of the list of grievants and as to the amounts of back pay) until 120 days after the date hereof (and

may extend the retention of jurisdiction for additional time if needed) to enable the parties to attempt to settle those matters and to enable the arbitrator to resolve any differences with respect thereto that the parties cannot settle by themselves, and also (in view of the amount of detail involved in this opinion and award) to correct inadvertent errors.

/s/ William Stix
Arbitrator

Issued April 23, 1986

APPENDIX A

New Hires after April 12, 1984 in Crafts other than Inside Electricians (Local 257)

Operating Engineers—Local 513: Operating engineers, all of whom are Grievants, were excluded from the job on April 12 because they had not passed the security screening. (Co. Ex. 11; Union Ex. 54E).

On April 17 the Company gave the Union a requisition for two operating engineers; the Union referred grievants Fricke and Harris, but both were turned around because they had not passed the screening. T. 1273-74. Immediately thereafter the requisition was cancelled.

Electricians ("outside"):—Local 2: Grievant Bax was excluded from the plan plant on April 12 for lack of security clearance. See part V, C of Opinion.

Laborers—Local 662:—Of the 50 Grievants who are members of the Union, almost all were excluded from the plant on April 12 for having failed to obtain security clearance. See Co. Ex. 11 and Union Ex. 94. On or after April 12, requisitions for laborers were received, to report as follows:

April 16	4
April 18	1 (replace a no-show on 4/16)
April 26	1
May 1	6
May 7	1 (replacement)
May 11	6 (10 hours x 7 days)
May 13	6
June 6	1
June 21	1
June 27	2 (10 hours x 7 days)
August 20	1

A number of Grievants who were referred on requisitions after April 12 were either turned around or worked a short period of time but were terminated when it was

discovered that they did not have security clearance. T. 1305-06; see Un. Ex. 54f, p. 19.

Painters—Local 1185: Of 37 painter-grievants almost all failed to pass the psychological test and of these several failed the background investigation. Twenty were excluded from the plant on April 12, when the security procedures were implemented; the Union had been notified by Mid-South, the painting subcontractor, that painters who did not meet security requirements "had to be terminated" T. 1705; Un. Ex. 48—letter from Mid-South Project Manager to Union Local 1185.

On October 5, 1984 the Company gave the Union a requisition for four painters and specified that they must have security clearance. Un. Ex. 91.

Sheet Metal Workers—Local 36: Of the nine sheet metal worker grievants, eight failed the psychological test (one of these also failed the security system test). Two of the nine were excluded from the plant on April 12 and the six others in May. (Co. Ex. 11). Twelve sheet metal workers were hired on August 27, 1984. (Un. Ex. 546).

COMPOSITION OF UNION ELECTRIC TEST

(Table Omitted in Printing)

APPENDIX C

Partial list of credentials of expert witnesses

1. The Company's experts

Sheldon L. Freud, of Washington, D.C., is a clinical psychologist who specializes in diagnostic testing rather than therapy. He holds an A.B. in psychology and an M.A. and Ph.D. in clinical psychology; he is licensed in Maryland and the District of Columbia; he is a diplomat of the American Board of Professional Examiners and a fellow of the American Psychological Association in clinical psychology and neuropsychology. He has had substantial experience in screening personnel at nuclear weapons sites as well as personnel in other high stress occupations and environments.

Samuel Krug, of Champaign, Illinois—see part IV A, "Background and Development of 'mini-IPAT' test."

2. The Unions' experts

Irving T. Gottesman was, at the time of the hearing, Professor of Psychiatric Genetics at Washington University School of Medicine (St. Louis). He holds a B.S. in Psychology from the Illinois Institute of Technology and a Ph.D. in Psychology from the University of Minnesota. He has been a Lecturer on Psychology at Harvard University; Clinical Assistant Professor and Associate Professor at the University of North Carolina Medical School and Psychology Department; a Guggenheim Fellow and Visiting Professor in Copenhagen, Denmark; and Professor in the Departments of Psychology, Psychiatry and Genetics at the University of Minnesota. He is a Fellow of the American Psychological Association; a member of the editorial boards of several professional journals; author or co-author of over 100 publications, many of them dealing with behavior genetics; and has received numerous professional honors. He is licensed as

a psychologist in Minnesota, California, and Missouri. He regards himself as "essentially a clinical psychologist" with several specialties including behavior genetics and the etiology of mental illness.

Arthur David Shulman is Associate Professor of Psychology at Washington University (St. Louis); he is director of the Ph.D. training program in personality, social psychology and organizational behavior. He holds a B.A. in psychology from Alfred University; an M.A. in psychology from McMaster University; and a Ph.D. in psychology from State University of New York. He is a social psychologist and does not have experience as a clinical psychologist, but has extensive teaching experience in psychological assessment and the use of personality tests and statistical analysis with regard to those such tests, but does not claim expertise in evaluation of an individual.

APPENDIX D—TABLE 2 FROM DR. KRUG'S 1981 ARTICLE

Table 2

OVERALL AGREEMENT BETWEEN MODEL WEIGHTING VECTOR AND PATTERN OF MEAN DEVIATIONS FOR VARIOUS DIAGNOSTIC SYNDROME GROUPS

	r_{cc}	Sample Size	Published Source
Criminals (unspecified)	—83**	891	16PF
Neurotic Depressive Reaction	—80**	70	16PF
Functional Psychosis	—74**	105	16PF
Alcoholics	—74**	1019	16PF
Criminals (sex-related offenses)	—72**	35	16PF
Neurotics	—72**	272	16PF
Narcotic Addicts	71**	937	16PF
Personality Disorder—antisocial type	—70**	34	CAQ
Anxiety Neurosis	—70**	80	16PF
Suicide Attempters	—69**	50	16PF
Manic-depressive Psychosis—depressed type	—67*	53	16PF
Chronic Undifferentiated Schizophrenic	—66**	33	CAQ
Suicide Attempters	—66*	50	16PF
Acute Undifferentiated Schizophrenia	—65*	41	16PF
Personality Disorder—inadequate personality	—64*	54	16PF
Personality Disorder—obsessive-compulsive type	—63*	29	16PF
Neurotics	—63**	26	CAQ
Personality Disorder—passive-aggressive type	—62**	42	CAQ
Schizophrenia—schizo-affective type	—59*	27	16PF
Personality Disorder—antisocial type	—57*	97	16PF
Sociopath	—57*	28	16PF
Child Abusers	—51*	78	CAQ
Paranoid Schizophrenics	—46*	59	CAQ

Note: Entries in the "Published Source" column indicate that the corresponding profile will be found in either the 16PF *Handbook* (Cattell et al., 1970) or the CAQ *Handbook* (Krug. 1980).

* $_{T}< .05$

** $_{T}< .01$

APPENDIX E—TAYLOR-RUSSELL TABLE AND WIGGINS FORMULA

1. PROPORTION OF EMPLOYEES CONSIDERED SATISFACTORY, *i.e.*, the proportion of the group now employed (not chosen by means of the test) who are considered satisfactory according to present standards

$$\left(\text{Area } \frac{A+D}{A+B+C+D}, \text{ Chart I}\right)$$

2. SELECTION RATIO, *i.e.*, the proportion of applicants to be selected by means of the test.

3. r, the validity of the test.

4. PROPORTION SATISFACTORY AMONG THOSE SELECTED, *i.e.*, the proportion of applicants to be selected by means of the test who are expected to be satisfactory according to present standards

$$\left(\text{Area } \frac{A}{A-B}, \text{ Chart I}\right)$$

There are eleven tables, corresponding to eleven values of the PROPORTION OF EMPLOYEES CONSIDERED SATISFACTORY, these values being .05, .10, .20, .30, .40, .50, .60, .70, .80, .90, and .95.

The columns of each table correspond to eleven values of the SELECTION RATIO: .05, .10, .20, .30, .40, .50, .60, .70, .80, .90, and .95.

The rows of each table correspond to values of r from .00 to 1.00 by intervals of .05.

The argument of these tables is the PROPORTION SATISFACTORY AMONG THOSE SELECTED.

For example, if .60 or 60% of the present employees are considered satisfactory, and if the best .30 of applicants are to be chosen by means of a test with a validity of .70, then .91, or 91%, of those selected can be expected to be satisfactory. Note that with test validities of zero and unity, the proportions satisfactory among those selected would be .60 and 1.00 respectively.

Tables of the Proportion Who Will be Satisfactory Among Those Selected for Given Values of the Proportion of Present Employees Considered Satisfactory, the Selection Ratio, and r

Proportion of Employees Considered Satisfactory = .05
Selection Ratio

r	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
.00	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
.05	.06	.06	.06	.06	.06	.05	.05	.05	.05	.05	.05
.10	.07	.07	.07	.06	.06	.06	.06	.05	.05	.05	.05
.15	.09	.08	.07	.07	.07	.06	.06	.06	.05	.05	.05
.20	.11	.09	.08	.08	.07	.07	.06	.06	.06	.05	.05
.25	.12	.11	.09	.08	.08	.07	.07	.06	.06	.05	.05
.30	.14	.12	.10	.09	.08	.07	.07	.06	.06	.05	.05
.35	.17	.14	.11	.10	.09	.08	.07	.06	.06	.05	.05
.40	.19	.16	.12	.10	.09	.08	.07	.07	.06	.05	.05
.45	.22	.17	.13	.11	.10	.08	.08	.07	.06	.06	.05
.50	.24	.19	.15	.12	.10	.09	.08	.07	.06	.06	.05
.55	.28	.22	.16	.13	.11	.09	.08	.07	.06	.06	.05
.60	.31	.24	.17	.13	.11	.09	.08	.07	.06	.06	.05
.65	.35	.26	.18	.14	.11	.10	.08	.07	.06	.06	.05
.70	.39	.29	.20	.15	.12	.10	.08	.07	.06	.06	.05
.75	.44	.32	.21	.15	.12	.10	.08	.07	.06	.06	.05
.80	.50	.35	.22	.16	.12	.10	.08	.07	.06	.06	.05
.85	.56	.39	.23	.16	.12	.10	.08	.07	.06	.06	.05
.90	.64	.43	.24	.17	.13	.10	.08	.07	.06	.06	.05
.95	.73	.47	.25	.17	.13	.10	.08	.07	.06	.06	.05
1.00	1.00	.50	.25	.17	.13	.10	.08	.07	.06	.06	.05

Prportion of Employees Considered Satisfactory = .10
Selection Ratio

r	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
.00	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10	.10
.05	.12	.12	.11	.11	.11	.11	.11	.10	.10	.10	.10
.10	.14	.13	.13	.12	.12	.11	.11	.11	.11	.10	.10
.15	.16	.15	.14	.13	.13	.12	.12	.11	.11	.10	.10
.20	.19	.17	.15	.14	.14	.13	.12	.12	.11	.11	.10
.25	.22	.19	.17	.16	.14	.13		.12	.11	.11	.10
.30	.25	.22	.19	.17	.15	.14	.13	.12	.12	.11	.10
.35	.28	.24	.20	.18	.16	.15	.14	.13	.12	.11	.10
.40	.31	.27	.22	.19	.17	.16	.14	.13	.12	.11	.10
.45	.35	.29	.24	.20	.18	.16	.15	.13	.12	.11	.10
.50	.39	.32	.26	.22	.19	.17	.15	.13	.12	.11	.11
.55	.43	.36	.28	.23	.20	.17	.15	.14	.12	.11	.11
.60	.48	.39	.30	.25	.21	.18	.16	.14	.12	.11	.11
.65	.53	.43	.32	.26	.22	.18	.16	.14	.12	.11	.11
.70	.58	.47	.35	.27	.22	.19	.16	.14	.12	.11	.11
.75	.64	.51	.37	.29	.23	.19	.16	.14	.12	.11	.11
.80	.71	.56	.40	.30	.24	.20	.17	.14	.12	.11	.11
.85	.78	.62	.43	.31	.25	.20	.17	.14	.12	.11	.11
.90	.86	.69	.46	.33	.25	.20	.17	.14	.12	.11	.11
.95	.95	.78	.49	.33	.25	.20	.17	.14	.12	.11	.11
1.00	1.00	1.00	.50	.33	.25	.20	.17	.14	.13	.11	.11

outcomes of prediction. Consider a test with the quite modest validity of $\phi_{yy} = .18$ that is applied to a population in which the base rate of success is .40. Figure 6.7 illustrates the outcomes of prediction when the test is employed under selection ratios of .95, .50, and .05. The values in Figure 6.7 were calculated in the same manner as in previous examples relating to base rates. The probabilities of valid positives were estimated from the formula

$$P(\text{VP}) = BR \cdot SR + \phi_{yy}/BR(1 - BR)SR(1 - SR),$$

and the remaining cell entries were determined by subtraction.

Under a selection ratio of .95 (Fig. 6.7a) the overall proportion of correct decisions is .448, which represents an increment over random selection of only .038. Under a selection ratio of .50 (Fig. 6.7b) the overall proportion of correct decisions is .900, which represents the considerable increment of .400 over random selection. Although the extremely small selection ratio of .05 (Fig. o.7c) yields an overall proportion of correct decisions of .628, the tiny increment of .038 over random selection is identical to that achieved under a selection ratio of .95. This puzzling set of findings does not seem consistent with the generalization that selection becomes more efficient as the selection ratio becomes smaller.

The reason for the apparent contradiction lies in the fact that Taylor and Russell used the word "efficient" in a more restricted sense than we have been using it. Instead of considering the overall proportion of correct decisions made by a test, $P(\text{VP}) + P(\text{VN})$, Taylor and Russell emphasized *the proportion of selected applicants who are subsequently judged to be successful.* This probability is estimated by dividing the probability of valid positives by the selection ratio: $P(\text{VP})/SR$. As Figure

6.7 indicates, under a selection ratio of .95, 42 percent of those selected turn out to be successful. When the selection ratio is reduced to .50, this proportion increases to 49 percent. And finally, when the selection ratio is .05, a test of quite modest validity identifies 78 percent of successful applicants from among those selected. It is in this sense that smaller selection ratios are said to result in more efficient selection.

In industrial selection, it is quite common to *ignore* the outcomes of rejection. Applicants who should not have been hired, VN, and even those who "would have been" successful, FN, have no obvious effect on the subsequent productivity of the industry involved. That is, the outcomes of rejection have no positive *utility* for the firm. From the standpoint of utility, industries are more concerned about the productivity of successful employees, VP, and the costliness of hiring unsatisfactory employees, FP. For this reason, the "hit rate" of $P(\mathrm{VP})/SR$ is of greater interest than indices based on all possible outcomes of selection.

But there are many other selection situations in which the outcomes of rejection are of considerable importance. The most dramatic examples are found in medical and psychiatric diagnosis. If the "postive class" to be identified is schizophrenia, brain damage, cancer, or suicide, the proportion

Fig. 6.7 Outcomes of prediction under different selection ratios ($BR = .40$; $\phi_{yy'} = .18$).

(a)

P(FN)	P(VP)	
.001	.399	BR=.40
P(VN)	P(FP)	
.049	.551	I−BR=.60

I−SR=.05 SR=.95
Overall=.448
Random=.410
Increment=.038
P(VP)/SR=.420

(b)

P(FN)	P(VP)	
.156	.244	BR=.40
P(VN)	P(FP)	
.656	.256	I−BR=.60

I−SR=.50 SR=.50
Overall=.900
Random=.500
Increment=.400
P(VP)/SR=.488

	P(FN)	P(VP)	
	.361	.039	BR=.40

(c)

	P(VN)	P(FP)	
	.589	.011	I−BR=.60

I−SR=.95 SR=.05
Overall=.628
Random=.590
Increment=.038
P(VP)/SR=.780

of false negatives who do not receive the required treatment is of the utmost concern. For example, if Figure 6.7c were used to select brain-damaged patients, the proportion who would be operated on is 78 percent. But 90 percent of the patients in need of treatment would not receive it!

The validity coefficient of a psychological test does not tell the whole story of predictive success, and it is therefore necessary to consider the discriminative efficiency of a test in terms of the four possible outcomes of prediction. But even knowing the probabilities of the various outcomes does not enable us to evaluate the worth of the test unless we are able to specify the *utilities* associated with such outcomes.

APPENDIX F

AMERICAN NATIONAL STANDARD SECURITY FOR NUCLEAR POWER PLANTS ANSI/ANS—3.3—1982

5.4.5 Access Authorization

5.4.5.1 Screening. The physical security plan shall establish a personnel screening program for authorizing unescorted access. An acceptable program shall include the specific designation of a management person to assure completion of personnel screening as described herein. All elements of the screening program identified in Table 1 shall be completed, except as prohibited by or in conflict with applicable law, including the obtaining of signed releases from the individual to obtain the specified information. Prior to initiation of the screening process, the individual to be screened shall be appraised of the scope and purpose of the screening process including the requirement to interview developed character references, and provisions shall be made for the individual to acknowledge understanding of the scope and purpose of the screening.

Personnel screening shall be conducted in-depth according to the sensitivity of the areas to which unescorted access is to be permitted. The depth of the screening shown in Table 1 shall be acceptable for this standard. Within the time periods indicated in Table 1, an individual shall have established a reputation as to reliability and trustworthiness which shall be reviewed to determine acceptance for or denial of unescorted access to the applicable area.

If screening which meets these requirements has been performed by another employer, rescreening should not be required for granting unescorted access. The employer should certify to the owner organization that

Table 1

Personnel Screening

	Previous Employment Check *		Education Check *		Criminal Record Check *		Two Listed and Two Developed Reference Checks *	Psychological Evaluation *	Continued Observation
Immediate past at time of screening	3 Yrs.	2 Yrs.	3 Yrs.	2 Yrs.	3 Yrs.	2 Yrs.	3 Yrs.	3 Yrs.	
Protected Area		X		X		X		X	X
Vital Area	X		X		X		X	X	X

* Not required for individuals who were employed by the owner organization or contractor for uninterrupted time periods indicated. The time periods indicated for previous employment, education, criminal conviction records and reference checks establish the period which the applicable checks cover.

screening meeting the requirements of this standard has been accomplished. This should be documented on a form containing the necessary information (Footnote omitted). A reputation of reliability and trustworthiness shall be questioned if the screening reveals any of the following:

(1) willful omission or falsification of information submitted in support of employment or request for unescorted access to protected or vital areas

(2) use of nonprescribed narcotic or hallucinogenic drugs or excessive use of alcohol

(3) a criminal conviction that could cause concern as it relates to the safety or security of the plant

(4) history of mental illness or emotional instability that may cause a significant defect in the individual's judgment or reliability

(5) any evidence of coercion, influence or pressure that may be applied by outside sources to compel an individual to commit an act of sabotage that could affect the health or safety of the public or plant personnel

(6) any other information that would adversely reflect upon the reliability and trustworthiness of the individual as it relates to being permitted unescorted access.

Where the screening program produces information as listed previously, unescorted access shall not be granted unless a subsequent investigation is conducted and a determination made that the information is either untrue or that it is not applicable in determining reliability and trustworthiness of the individual. Upon completion of the investigation and evaluation, the responsible management person shall submit to the plant manager or an appropriate designee, a recommendation for granting or denying unescorted access.

The screening program shall consist of the following items:

(a) Previous Employment. Verify employment at other than the owner organization's facilities and interruptions thereto. A check shall be performed and documented to include reason for termination and to establish reliability and trustworthiness.

(b) Education. Where the individual lists enrollment at an educational institution, the individual's attendance and level of achievement shall be confirmed.

(c) Criminal Conviction Record. As permitted by federal, state, or other applicable law, a criminal conviction record check through appropriate law enforcement agencies or court conviction records shall be performed.

(d) References. When access to a vital area is to be permitted, reference checks shall be made both with those provided by the individual as well as those not provided by the individual (developed).

(e) Psychological Evaluation. Reliability and stability shall be indicated by the results of a reliable and valid

written personality test or by other professionally accepted clinical assessment procedure administered by or under the supervision of a licensed psychologist or psychiatrist cognizant of this standard.

(f) Continued Observation. A continued observation program shall be established and administered by or under the direction of owner organization. Supervisory personnel instructed to recognize unusual behavior shall observe employees for performance of job-related duties, attendance, and attitude toward work and fellow employees. When unusual behavior of a person granted unescorted access is observed, it shall be reported to plant management for evaluation and appropriate action. Supervisory personnel responsible for providing of continued observation may be employed by the owner organization or by a contract or vendor organization.

APPENDIX G

Atomic Energy Act of 1954, as amended
42 U.S.C. §§ 2011 *et seq.* (Excerpts)

42 U.S.C. § 2012. Congressional findings

The Congress of the United States makes the following findings concerning the development, use, and control of atomic energy:

(a) The development, utilization, and control of atomic energy for military and for all other purposes are vital to the common defense and security.

(b) Repealed. Pub. L. 88-489, § 1, Aug. 26, 1964, 78 Stat. 602.

(c) The processing and utilizaiton of source, byproduct, and special nuclear material affect interstate and foreign commerce and must be regulated in the national interest.

(d) The processing and utilization of source, byproduct, and special nuclear material must be regulated in the national interest and in order to provide for the common defense and security and to protect the health and safety of the public.

(e) Source and special nuclear material, production facilities, and utilization facilities are affected with the public interest, and regulation by the United States of the production and utilizaiton of atomic energy and of the facilities used in connection therewith is necessary in the national interest to assure the common defense and security and to protect the health and safety of the public.

(f) The necessity for protection against possible interstate damage occurring from the operation of facilities for the production or utilization of source or special nuclear material places the operation of those facilities in interstate commerce for the purposes of this chapter.

(g) Funds of the United States may be provided for the development and use of atomic energy under conditions which will provide for the common defense and security and promote the general welfare.

(h) Repealed. Pub. L. 88-489, § 2, Aug. 26, 1964, 78 Stat. 602.

(i) In order to protect the public and to encourage the development of the atomic energy industry, in the interest of the general welware and of the common defense and security, the United States may make funds available for a portion of the damages suffered by the public from nuclear incidents, and may limit the liability of those persons liable for such losses.

Aug. 1, 1946, c. 724, § 2, as added Aug. 30, 1954, c. 1073, § 1, 68 Stat. 921, and amended Sept. 2 1957. Pub. L. 85-256, § 1, 71 Stat. 576; Aug. 26, 1964, Pub. L. 88-489, §§ 1, 2, 78 Stat. 602.

42 U.S.C. § 2133. Commercial licenses—Conditions

(a) The Commission is authorized to issue licenses to persons applying therefor to transfer or receive in interstate commerce, manufacture, produce, transfer, acquire, possess, use, import, or export under the terms of an agreement for coopertaion arranged pursuant to section 2153 of this title, utilization or production facilities for industrial or commercial purposes. Such licenses shall be issued in accordance with the provisions of subchapter XV of this chapter and subject to such conditions as the Commission may by rule or regulation establish to effectuate the purposes and provisions of this chapter.

Nonexclusive basis

(b) The Commission shall issue such licenses on a nonexclusive basis to persons applying therefor (1) whose proposed activities will serve a useful purpose proportionate to the quantities of special nuclear material or

source material to be utilized; (2) who are equipped to observe and who agree to observe such safety standards to protect health and to minimize danger to life or property as the Commission may by rule establish; and (3) who agrees to make available to the Commission such technical information and data concerning activities under such licenses as the Commission may determine necessary to promote the common defense and security and to protect the health and safety of the public. All such information may be used by the Commission only for the purposes of the common defense and security and to protect the health and safety of the public.

License period

(c) Each such license shall be issued for a specified period, as determined by the Commission, depending on the type of activity to be licensed, but not exceeding forty years, and may be renewed upon the expiration of such period.

Limitations

(d) No license under this section may be given to any person for activities which are not under or within the jurisdiction of the United States, except for the export of production or utilization facilities under terms of an agreement for cooperation arranged pursuant to section 2153 of this title, or except under the provisions of section 2139 of this title. No license may be issued to an alien or any any[1] corporation or other entity if the Commission knows or has reason to believe it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government. In any event, no license may be issued to any person within the United States if, in the opinion of the Commission, the issuance of a license to such person would be inimical to the common defense and security or to the health and safety of the public.

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[1] So in original.

(e) Accident notification condition; license revocation; license amendment to include conditions.

Each license issued for a utilization facility under this section or section 2134(b) of this title shall require as a condition thereof that in case of any accident which could result in an unplanned release of quantities of fission products in excess of allowable limits for normal operation established by the Commission, the licensee shall immediately so notify the Commission. Violation of the condition prescribed by this subsection may, in the Commission's discretion, constitute grounds for license revocation. In accordance with section 2237 of this title, the Commission shall promptly amend each license for a utilization facility issued under this section or section 2134(b) of this title which is in effect on June 30, 1980, to include the provisions required under this subsection.

Aug. 1, 1946, c. 724, § 103, as added Aug. 30, 1954, c. 1073, § 1, 68 Stat. 936, and amended Aug. 6, 1956, c. 1015, §§ 12, 13, 70 Stat. 1071; Dec. 19, 1970, Pub. L. 91-560, § 4, 84 Stat. 1472; June 30, 1980, Pub. L. 96-295, Title II, § 201(a), 94 Stat. 7861.

42 U.S.C. § 2201. General duties of Commission

In the performance of its functions the Commission is authorized to—

* * * *

Standards governing use and possession of material

(b) establish by rule, regulation, or order, such standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may deem necessary to desirable to promote the common defense and security or to protect health or to minimize danger to life or property;

* * * *

42 U.S.C. § 2232. License applications—Contents and form

(a) Each application for a license hereunder shall be in writing and shall specifically state such information as the Commission, by rule or regulation, may determine to be necessary to decide such of the technical and financial qualifications of the applicant, the character of the applicant, the citizenship of the applicant, or any other qualifications of the applicant as the Commission may deem appropriate for the license. In connection with applications for licenses to operate production or utilization facilities, the applicant shall state such technical specifications, including information of the amount, kind, and source of special nuclear material required, the place of the use, the specific characteristics of the facility, and such other information as the Commission may, by rule or regulation, deem necessary in order to enable it to find that the utilization or production of special nuclear material will be in accord with the common defense and security and will provide adequate protection to the health and safety of the public. Such technical specifications shall be a part of any license issued. The Commission may at any time after the filing of the original application, and before the expiration of the license, require further written statements in order to enable the Commission to determine whether the application should be granted or denied or whether a license should be modified or revoked. All applications and statements shall be signed by the applicant or licensee. Applications for, and statements made in connection with, licenses under sections 2133 and 2134 of this title shall be made under oath or affirmation. The Commission may require any other applications or statements to be made under oath or affirmation.

Review of applications by Advisory Committtee on Reactor Safeguards; report

(b) The Advisory Committee on Reactor Safeguards shall review each application under section 2133 or sec-

tion 2134(b) of this title for a construction permit or an operating license for a facility, any application under section 2134(c) of this title for a construction permit or an operating license for a testing facility, any application under subsection (a) or (c) of section 2134 of this title specifically referred to it by the Commission, and any application for an amendment to a construction permit or an amendment to an operating license under section 2133 or 2134(a), (b), or (c) of this title specifically referred to it by the Commission, and shall submit a report thereon which shall be made part of the record of the application and available to the public except to the extent that security classification prevents disclosure.

Commercial power; publication

(c) The Commission shall not issue any license under section 2133 of this title for a utilization or production facility for the generation of commercial power until it has given notice in writing to such regulatory agency as may have jurisdiction over the rates and services incident to the proposed activity; until it has published notice of the application in such trade or news publications as the Commission deems appropriate to give reasonable notice to municipalities, private utilities, public bodies, and cooperatives which might have a potential interest in such utilization or production facility; and until it has published notice of such application once each week for four consecutive weeks in the Federal Register, and until four weeks after the last notice.

Preferred consideration

(d) The Commission, in issuing any license for a utilization or production facility for the generation of commercial power under section 2133 of this title, shall give preferred consideration to applications for such facilities which will be located in high cost power areas in the United States if there are conflicting applications for a limited opportunity for such license. Where such con-

flicting applications resulting from limited opportunity for such license include those submitted by public or co-operative bodies such applications shall be given preferred consideration.

Aug. 1, 1946, c. 724, § 182, as added Aug. 30, 1954, c. 1073, § 1, 68 Stat. 953, and amended Aug. 6, 1956, c. 1015; § 5, 70 tSat. 1070; Sept. 2, 1957, Pub.L. 85-256, § 6, 71 Stat. 579; Aug. 29, 1962, Pub.L. 87-615, § 3, 76 Stat. 409; Dec. 19, 1970, Pub.L. 91-560, § 9, 84 Stat. 1474.

42 U.S.C. § 2239. Hearings and judicial review.

(a) (1) In any proceeding under this chapter, for the granting, suspending, revoking, or amending of any license or construction permit, or application to transfer control, and in any proceeding for the issuance or modification of rules and regulations dealing with the activities of licensees, and in any proceeding for the payment of compensation, an award or royalties under sections 2183, 2187, 2236(c) or 2238 of this title, the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person as a party to such proceeding. The Commission shall hold a hearing after thirty days' notice and publication once in the Federal Register, on each application under section 2133 or 2134(b) of this title for a construction permit for a facility, and on any application under section 2134(c) of this title for a construction permit for a testing facility. In cases where such a construction permit has been issued following the holding of such a hearing, the Commission may, in the absence of a request therefor by any person whose interest may be affected, issue an operating license or an amendment to a constrction permit or an amendment to an operating license without a hearing, but upon thirty days' notice and publication once in the Federal Register of its intent to do so. The Commission may dispense

with such thirty days' notice and publication with respect to any application for an amendment to a construction permit or an amendment to an operating license upon a determination by the Commission that the amendment involves no significant hazards consideration.

(2) (A) The Commission may issue and make immediately effective any amendment to an operating license, upon a determination by the Commission that such amendment involves no significant hazards consideration, notwithstanding the pendency before the Commission of a request for a hearing from any person. Such amendment may be issued and made immediately effective in advance of the holding and completion of any required hearing. In determining under this section whether such amendment involves no significant hazards consideration, the Commission shall consult with the State in which the facility involved is located. In all other respects such amendment shall meet the requirements of this chapter.

(B) The Commission shall periodically (but not less frequently than once every thiry days) publish notice of any amendments issued, or proposed to be issued, as provided in subparagraph (A). Each such notice shall include all amendments issued, or proposed to be issued, since the date of publication of the last such periodic notice. Such notice shall, with respect to each amendment or proposed amendment (i) identify the facility involved; and (ii) provide a brief description of such amendment. Nothing in this subsection shall be construed to delay the effective date of any amendment.

(C) The Commission shall, during the ninety-day period following the effective date of this paragraph, promulgate regulations establishing (i) standards for determining whether any amendment to an operating license involves no significant hazards consid-

eration; (ii) criteria for providing or, in emergency situations, dispensing with prior notice and reasonable opportunity for public comment on any such determination, which criteria shall take into account the exigency of the need for the amendment involved; and (ii) procedures for consultation on any such determination with the State in which the facility involved is located.

(b) Any final order entered in any proceeding of the kind specified in subsection (a) of this section shall be subject to judicial review in the manner prescribed in the Act of December 29, 1950, as amended, and to the provisions of section 10 of the Administrative Procedure Act, as amended.

Aug. 1, 1946, c. 724, § 189, as added Aug 30, 1954, c. 1073, § 1, 68 Stat. 955, and amended Sept. 2, 1957, PubL. 85-256, § 7, 71 Stat. 579; Aug. 29, 1962. Pub.L. 87-615, § 2, 76 Stat 409; Jan. 4, 1983. Pub.L. 97-415, § 97-415, § 12(a), 96 Stat. 2073.)

42 U.S.C. § 5844. Office of Nuclear Safety and Safeguards

(a) Establishment; appointment of Director

There is hereby established in the Commission an Office of Nuclear Material Safety and Safeguards under the direction of a Director of Nuclear Material Safety and Safeguards, who shall be appointed by the Commission, who may report directly to the Commission as provided in section 5849 of this title, and who shall serve at the pleasure of and be removable by the Commission.

(b) Functions of Director

Subject to the provisions of this chapter, the Director of Nuclear Material Safety and Safeguards shall perform such functions as the Commission shall delegate including:

(1) Principal licensing and regulation involving all facilities and materials, licensed under the Atomic Energy Act of 1954, as amended [42 U.S.C.A. § 2011 et seq.], associated with the processing, transport, and handling of nuclear materials, including the provision and maintenance of safeguards against threats, thefts, and sabotage of such licensed facilities, and materials.

(2) Review safety and safeguards of all such facilities and materials licensed under the Atomic Energy Act of 1954, as amended, and such review shall include, but not be limited to—

(A) monitoring, testing, and recommending upgrading of internal acounting systems for special nuclear and other nuclear materials licensed under the Atomic Energy Act of 1954, as amended;

(B) developing, in consultation and coordination with the Administration, contingency plans for dealing with threats, thefts, and sabotage relating to special nuclear materials, high-level radioactive wastes and nuclear facilities resulting from all activities licensed under the Atomic Energy Act of 1954, as amended;

(C) assesing the need for, and the feasibility of, establishing a security agency within the office for the performance of the safeguards functions, and a report with recommendations on this matter shall be prepared within one year of the effective date of this chapter and promptly transmitted to the Congress by the Commission.

(3) Recommending research to enable the Commission to more effectively perform its functions.

(c) Responsibility for safeguarding special nuclear materials; high-level radioactive wastes and nuclear facilities

Nothing in this section shall be construed to limit in any way the functions of the Administration relating to the safeguarding of special nuclear materials, high-level radioactive wastes and nuclear facilities resulting from all activities within the jurisdiction of the Administration pursuant to this chapter.

(Pub.L. 93-438. Title II, § 204, Oct. 11, 1974, 88 Stat. 1245.)

APPENDIX H

Regulations of the Nuclear Regulatory Commission,
10 CFR Ch. 1 (1-1-88 Edition) (Excerpts)

10 CFR § 50.34
(NUCLEAR REGULATORY COMMISSION)

* * * *

(c) *Physical security plan.* Each application for a license to operate a production or utilization facility shall include a physical security plan. The plan shall consist of two parts. Part I shall address vital equipment, vital areas, and isolation zones, and shall demonstrate how the applicant plans to comply with the requirements of Part 73 (and Part 11 of this chapter, if applicable, including the identification and description of jobs as required by § 11.11(a), at the proposed facility). Part II shall list tests, inspections, and other means to be used to demonstrate compliance with such requirements, if applicable.

(d) *Safeguards contingency plan.* Each application for a license to operate a production or utilization facility that will be subject to §§ 73.50, 73.55, or § 73.60 of this chapter must include a licensee safeguards contingency plan in accordance with the criteria set forth in Appendix C to 10 CFR Part 73. The safeguards contingency plan shall include plans for dealing with threats, thefts, and radiological sabotage, as defined in Part 73 of this chapter, relating to the special nuclear material and nuclear facilities licensed under this chapter and in the applicant's possession and control. Each application for such a license shall include the first four categories of information contained in the applicant's safeguards contingency plan. (The first four categories of information as set forth in Appendix C to 10 CFR Part 73 are Background, Generic Planning Base, Licensee Planning Base, and Responsibility Matrix. The fifth category of infor-

mation, Procedures, does not have to be submitted for approval.)[7]

(e) Each applicant for a license to operate a production or utilization facility, who prepares a physical security plan, a safeguards contingency plan, or a guard qualification and training plan, shall protect the plans and other related Safeguards Informtaion against unauthorized disclosure in accordance with the requirements of § 73.21 of this chapter, as appropriate.

10 CFR § 73.1
(NUCLEAR REGULATORY COMMISSION)

§ 73.1 Purpose and scope.

(a) *Purpose.* This part prescribes requirements for the establishment and maintenance of a physical protection system which will have capabilities for the protection of special nuclear material at fixed sites and in transit and of plants in which special nuclear material is used. The following design basis threats, where referenced in ensuing sections of this part, shall be used to design safeguards systems to protect against acts of radiological sabotage and to prevent the theft of special nuclear material:

(1) *Radiological sabotage.* (1) A determined violent external assault, attack by stealth, or deceptive actions, of several persons with the following attributes, assistance and equipment: (A) Well-trained (including military training and skills) and dedicated individuals, (B) inside assistance which may include a knowledgeable individual who attempts to participate in a passive role (e.g., provide information), an active role (e.g., facili-

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[7] A physical security plan that contains all the information required in both 73.55 and Appendix C to Part 73 satisfies the requirement for a contingency plan.

* * * *

tate entrance and exit, disable alarms and communications, participate in violent attack), or both, (C) suitable weapons, up to and including hand-held automatic weapons, equipped with silencers and having effective long range accuracy, (D) hand-carried equipment, including incapacitating agents and explosives for use as tools of entry or for otherwise destroying reactor, facility, transporter, or container integrity or features of the safeguards system, and

(ii) An internal threat of an insider, including an employee (in any position).

(2) *Theft or diversion of formula quantities of strategic special nuclear material.* (i) A determined, violent, external assault, attack by stealth, or deceptive actions, by a small group with the following attributes, assistance and equipment: (A) Well-trained (including military training and skills) and dedicated individuals, (B) inside assistance which may include a knowledgeable individual who attempts to participate in a passive role (e.g., provide information), an active role (e.g., facilitate entrance and exit, disable alarms and communications, participate in violent attack), or both, (C) suitable weapons, up to and including hand-held automatic weapons, equipped with silencers and having effective long range accuracy, (D) hand-carried equipment, including incapacitating agents and explosives for use as tools of entry or for otherwise destroying reactor, facility, transporter or container integrity or features of the safeguards system, and (E) the ability to operate as two or more teams.

(ii) An individual, including an employee (in any position), and

(iii) A conspiracy betwen individuals in any position who may have: (A) Access to and detailed knowledge of nuclear power plants or the facilities referred to in § 73.20(a), or (B) items that could facilitate theft of

special nuclear material (e.g., small tools, substitute material, false documents, etc.), or both.

* * * *

10 CFR § 73.55
(NUCLEAR REGULATORY COMMISSION)

(d) *Access Requirements.* (1) The licensee shall control all points of personnel and vehicle access into a protected area. Identification and search of all individuals unless otherwise provided herein must be made and authorization must be checked at these points. The search function for detection of firearms, explosives, and incendiary devices must be accomplished through the use of both firearms and explosive detection equipment capable of detecting those devices. The licensee must subject all persons except bona fide Federal, State, and local law enforcement personnel on official duty to these equipment searches upon entry into a protected area. When the licensee has cause to suspect that an individual is attempting to introduce firearms, explosives, or incendiary devices into protected areas, the licensee shall conduct a physical pat-down search of that individual. Whenever firearms or explosives detection equipment at a portal is out of service or not operating satisfactorily, the licensee shall conduct a physical pat-down search of all persons who would otherwise have been subject to equipment searches. The individual responsible for the last access control function (controlling admission to the protected area) must be isolated within a bullet-resisting structure as described in paragraph (c)(6) of this section to assure his or her ability to respond or to summon assistance. By Dec. 2, 1986 each licensee shall submit revisions to its security plan which define how the final search requirements of this paragraph will be met. The final search requirements of this package must be implemented by the licensee within 60 days after Commission approval of the proposed security plan revisions.

(2) At the point of personnel and vehicle access into a protected area, all hand-carried packages shall be searched for devices such as firearms, explosives, and incendiary devices, or other items which could be used for radiological sabotage.

(3) All packages and material for delivery into the protected area shall be checked for proper identification and authorization and searched for devices such as firearms, explosives and incendiary devices or other items which could be used for radiological sabotage, prior to admittance into the protected area, except those Commission approved delivery and inspection activities specifically designated by the licensee to be carried out within vital or protected areas for reasons of safety, security or operational necessity.

(4) All vehicles, except under emergency conditions, shall be searched for items which could be used for sabotage purposes prior to entry into the protected area. Vehicle areas to be searched shall include the cab, engine compartment, undercarriage, and cargo area. All vehicles, except designated licensee vehicles, requiring entry into the protected area shall be escorted by a member of the security organization while within the protected area and, to the extent practicable, shall be off loaded in the protected area at a specific designated materials receiving area that is not adjacent to a vital area. Designated licensee vehicles shall be limited in their use to onsite plant functions and shall remain in the protected area except for operational, maintenance, repair security and emergency purposes. The licensee shall exercise positive control over all such designated vehicles to assure that they are used only by authorized persons and for authorized purposes.

(5) A numbered picture badge indentification system shall be used for all individuals who are authorized access to protected areas without escort. An individual not

employed by the licensee but who requires frequent and extended access to protected and vital areas may be authorized access to such areas without escort provided that he receives a picture badge upon entrance into the protected area which must be returned upon exit from the protected area and which indicates: (i) Non-employee-no escort required, (ii) areas to which access is authorized and (iii) the period for which access has been authorized. Badges shall be displayed by all individuals while inside the protected area.

(6) Individuals not authorized by the licensee to enter protected areas without escort shall be escorted by a watchman, or other individual designated by the licensee, while in a protected area and shall be badged to indicate that an escort is required. In addition, each such individual shall be required to register his name, date, time, purpose of visit and employment affiliation, citizenship, and name of the individual to be visited.

(7) The licensee shall:

(i) Establish an access authorization system to limit unescorted access to vital areas during nonemergency conditions to individuals who require access in order to perform their duties. To achieve this, the licensee shall:

(A) Establish current authorization access lists for each vital area. The access lists must be updated and reapproved by the cognizant licensee manager or supervisor at least once every 31 days. The licensee shall include on the access list only individuals whose specific duties require access to vital areas during nonemergency conditions.

(B) Positively control, in accordance with the access list established pursuant to paragraph (d) (7) (i) of this section, all points of personnel and vehicle access to vital areas.

(C) Revoke, in the case of an individual's involuntary termination for cause, the individual's unescorted facility access and retrieve his or her identification badge and other entry devices, as applicable, prior to or simultaneously with notifying this individual of his or her termination.

(D) Lock and protect by an activated intrusion alarm system all unoccupied vital areas.

(ii) Design the access authorization system to accommodate the potential need for rapid ingress or egress of individuals during emergency conditions or situations that could lead to emergency conditions. To help assure this, the licensee shall:

(A) Ensure prompt access to vital equipment.

(B) Periodically review physical security plans and contingency plans and procedures to evaluate their potential impact on plant and personnel safety.

(8) Access to the reactor containment shall be through doors or hatches which shall be alarmed and have locks of substantial construction to offer pentration resistance and impede both surreptitious and forced entry. Any time frequent access is permitted to containment such as during refueling or major maintenance, positive access control to assure that only authorized personnel and materials are permitted into the containment shall be exercised by the licensee, with a guard or watchmen.

(9) All keys, locks, combinations, and related access control devices used to control access to protected areas and vital areas must be controlled to reduce the probability of compromise. All such keys, locks, combinations, and related access control devices must be changed or rotated at least every 12 months. Whenever there is evidence or suspicion that any key, lock, combination, or related access control devices may have been compromised, it must be changed or rotated. The licensee

shall issue keys, locks, combinations, and other access control devices to protected areas and vital areas only to persons granted unescorted facility access. Whenever an individual's unescorted access is revoked due to his or her lack of trustworthiness, reliability, or inadequate work performance, keys, locks, combination, and related access control devices to which that person had access must be changed or rotated.

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